MANUAL OF GEOGRAPHY

C. E. MANN

Class G73

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MANUAL

OF

GEOGRAPHY

AND

LANGUAGE

BY

C. E. MANN

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PREFATORY NOTE.

The discussions and suggestions that follow are the outgrowth of years of study and experience and in no case of untried theory. Each step of the course recommended and methods of study suggested in Geography has been worked out by ample class-room experience from the Third Grade to the High School, inclusive. All the teachers that have used, for any considerable time, the plan for teaching Geography here given are enthusiastic in its praise, and the writer wishes to express his thanks to all such for their encouragement and intelligent co-operation in developing some plan more satisfactory than that of attempting to memorize a mass of facts, the true relation of which was never even seriously considered. It is to put the results, thus worked out, into a form more readily accessible and definite that the Board of Education has authorized the publication of this Teachers' Manual.

The suggestions made as a form for investigating the different topics to be studied will not need to interfere with the ingenuity of any progressive teacher, but will serve to give form and definiteness to the work, and should be followed until a better way has been devised.

In common with most schools we used, for some time, the best Language books we could find, but it became more apparent each year that oral and written

Language work was the most helpful agency for gaining a digested idea of the regular studies of each grade. In justice to the regular work, more and more time was given to oral and written discussions of these themes, or parts of themes, and less Language work taken from the Language book. It was soon seen that the Language work growing out of a proper consideration of the topics studied from day to day was of a higher order than that obtained from a use of the Language book, and that, in addition, it was a very great help in placing the knowledge gained by the children in their regular studies into an organized form, hence the use of Language books was abandoned, and English was taught simply as a necessary means of expression in those subjects pursued because of their intrinsic value. This did not obviate the necessity of learning certain formal and somewhat arbitrary rules in English construction. It is to suggest such rules, in as logical an order as possible, as well as to discuss some of the underlying principles in oral and written Language work that Part II. of this book is prepared.

C. E. MANN, Supt. of Schools.

St. Charles, Ill., March 29, 1903.

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MANUAL OF GEOGRAPHY

AND

LANGUAGE.

Part I.—Geography.

The primary purpose of Geography, as here treated, is to teach how men supply their great material wants. This requires of its students a knowledge of the controlling industries of the world, including all important agencies and facilities now used in successfully conducting them. This aim involves the learning of some of the different methods used in the various great activities of life and the inductive discovery of many economic laws, the recognition of which is essential to material success.

The shaping influences of physical and climatic conditions are fully acknowledged, but it is also insisted that their recognition is most clear and effectual when approached from the human side, and not from the side of physical forces. Children are familiar with the use of woolen cloth for clothing, and it is a most natural step to the spinning and weaving of wool and the conditions that determine the location of great factories for such a purpose, the way in which woolen fabrics are made into clothing and, finally, what are the characteristics of soil and climate

best adapted to raising sheep, observing, as each process is considered, the intellectual, social and moral effect upon the people engaged in it. In the same manner the great food products, with which the children are already familiar, may be studied and the physical condition that largely control these industries then understood.

But this study of physical conditions should be the result of a proper inquiry as to some particular product; as, for example, in the study of fruits children could very easily see that the part of Michigan lying for some distance along the lake shore in the vicinity of St. Joseph is excellent for the cultivation of certain fruits. Examination would reveal the fact that this section is in the region of prevailing westerly winds which carry to the section the tempering influences of the large body of water west of it.

Properly followed, Geography furnishes some of the most helpful problems upon which children can work. It develops careful observation and requires the nicest reasoning. It is not the mere facts of Geography, but the relation of those facts that determines the social, intellectual and moral life of the world. It is with the hope of helping to guide the work along these lines that the following suggestions are given.

Although, with most children, much Geographical work may be done earlier, it is thought safer to recommend its formal introduction with the first of the fourth year. It is presumed, however, that all Geographic knowledge required for a proper understanding of the reading prescribed for the earlier grades, will have received careful attention.

This, with us, will include, in the second grade, "Stories of the United States," and "Big and Little People of Other Lands"; in the third grade, "Great Americans for Little Americans," "Stories of Colonial Children," "Seven Little Sisters," and "Each and All." The last two are especially used for their Geographical value. To this add the work outlined under Home Geography in this book and it may be safely assumed that pupils will be quite familiar with the meaning and use of globes and maps. This, of course, means not only the finished globe, but also the *slated globe* which, properly used, has in its use the highest degree of helpfulness. The wall maps, with all the lower grades, should always be hung on the north wall to insure less confusion as to direction. For this reason it is well, some times, to lay the map on the floor and let the children gather round it. They must be led to see that north is not always up and that south is not always down. Let no place of any significance in any lesson be passed without being definitely located both on the map, or globe, and actually in direction and comparative distance from the schoolroom.

From what is stated above, it will be seen that third year children will need to understand maps and this envolves, not only relative position, but actual distances; hence, they should learn the meaning of the scale of a map. For this purpose, take some object as the title page of a book, small enough to be outlined in its true measurement, placing all important objects or characters on the outline in proper position, not by guess but by careful measurement. When this is understood, take some object, as the schoolroom,

the school yard, the home lot of some child, a city block, a farm, something, too, large of course, to be outlined in its actual measurements, and devise some plan for outlining it on a practicable scale and then place correctly, by measurement, all important objects that should find a place within the outline. This is worth doing well, and then make *constant* use of this knowledge in ascertaining distances on maps consulted. This is greatly neglected in consulting maps even by adults, to say nothing of children.

Let us be quite certain to attend well to the assignment of a lesson. It is vastly better to prevent mistakes than to correct them.

Before any work is assigned to the children *we* must have very definitely and clearly in mind, not in some memorandum, merely, just what we wish to accomplish by the study of the topic we have in contemplation and then, with even greater care, decide *what part of that knowledge* it is necessary to have presented by book or teacher and what part may be gained by the child's own reading and reasoning. Nothing must be permitted to deprive the learner of his opportunity to think his way to a conclusion after he knows the material facts. There is more of educative value in one such act of comparison and judgment than in twenty acts of mere memory. Besides, the mental act of holding all the material conditions of any one theme firmly under one's attention is the most efficient means of memorizing them. It is very necessary to know that the children are in possession of the requisite knowledge, otherwise their thinking amounts, at best, to nothing but wild guessing and the mental act is worse than useless. We will all

admit that we have seen much time and effort thus thrown away. Further, before any assignment of work on a theme, *the class* should have gained a clear idea of what is contained in the topic to be studied, what are its natural parts and their relation to each other, and what is to be gained by its study. After this, work is intelligent and, consequently, more rapid and the interest greatly increased. It is here that a very large part of the real teaching is to be done. It is in this preparatory work that children may learn more than in any other way the invaluable lesson of *how to study.* While the above suggestions are made with reference to Geography, it is apparent that the principle involved is capable of a much wider application.

So far as practicable, the thing studied, or a good representation of it, should be at hand. Let us beware of "word" "words!" This material should be in hand *before the preparatory work is attempted or any lesson assigned.* Such examples of materials, collections of pictures, references to books and magazines would form an invaluable collection of Geographical material that would require, to systemaitze and make it readily available, appropriate cabinets and files, some of which the children could make and the Board reasonably be depended upon to supply the remainder. All such valuable material should be carefully kept.

A most interesting and important part of the study of any particular product, mineral, agricultural or manufactured, is that of finding for it a proper market. In this, more than a passing attention should be paid to prices, thereby furnishing a basis of knowledge upon which may

eventually be based a sound judgment as to values. It may be doubted whether we would be greatly shocked if we were told that pig iron is now selling for twenty dollars a ton, cotton at twelve cents a pound, wool at ten cents a pound, or that a bushel of wheat is transported from Duluth to New York for a cent. Our work should give actual facts along this line. Consult the daily papers. This knowledge is not only valuable in itself but it adds greatly to the interest taken by the children in the several topics. Another part of marketing any product is that of the method of transportation and this is the place and time to give this phase of the study its proper attention. Change of methods of transportation has transformed some lines of trade, created others and, doubtless, is still to work even greater wonders in many branches of business. Under this theme we must consider not only expense, but the time required for delivery, safety, the form in which the article can be most conveniently handled, special form of vehicle—carriage, car, tube or boat—used, as well as methods of loading and unloading, number of transfers required for the article to reach its destination. These shipments should be carefully and correctly traced from place of shipment to destination, whether it find a foreign or domestic market, observing all important places or objects passed or changes that take place on the way. Among the matters of interest, aside from cities thus brought to view, will be location and use of canals, construction and use of canal locks, railroad construction, side tracks and switches, docks, harbor guides, great wind and ocean currents. All these must be known by those who control

the transportation facilities of the world and now is the time, when the children see the need of this knowledge, to permit them to take advantage of the opportunity.

An essential of the plan underlying this outline is that a large part of the work that needs to be done in the study of Geography, should be centered about the knowledge to be gained of the great products of the world, *investigated separately.* These products, a little less than fifty of which have been thought of sufficient importance in the life of the world to require special consideration, have been classified, in a general way, under the following heads: Food, textiles, fuel, structural material. Several years of experience in teaching these topics, and as many in observing the teaching of them by others, seem to demonstrate the wisdom of a discriminating selection from these classes rather than an attempt to exhaust one list before attacking the next. This method of selection leaves one free to choose, for earlier study, those topics most closely related to the every day life of the children and of which they have the largest body of knowledge. This selection from these groups, thus moving gradually up the great pyramid of the world's industries furnishes just the opportunity desired, not only for the study of each individual in the different groups, but the ideal and the only method by which may be learned the relation and interdependence of these different industries and of the different classes of people supported by them. Industrially considered, at least, each man is his brother's keeper. It is not claimed that the order of succession of topics here suggested is the only one

that might be successfully followed, nor that, in some other region of the world, it might not be best to change the order, especially in the earlier part of the course, but it would be best to make no sweeping alteration.

The outline of each topic, as hereafter given, is not intended to be exhaustive, but, rather to select the most essential utilities in each and suggest a limit to the investigations, thereby hoping to preserve some balance among the different themes included in the general subject of Geography. A mistake here might wreck all attempts by this method, so all will heed this danger signal.

Frequent and intelligent reviews are necessary for all studies pursued by whatever methods; but reviews are not mere repetitions, but opportunities offered children for seeing a familiar field from some new and advantageous point of view. So-called reviews are frequently both unintelligent and irrational. Parrot repetition is good for parrots, not for children. It is unnecessary to waste time attempting to prove this. After several topics, as wheat, coal and lumber have been studied, the regions and cities especially connected with each should be located, the physical and climatic differences of such regions noted, different methods of labor, lines and methods of transportation, expense of transportation, different methods of preparation for market, and different markets reached may be considered and also the effect of each kind of labor required on the life of the laborer. Thus new and valuable knowledge will be gained, reasoning powers brought into play and something like intellectual digestion accomplished. All this is very

definitely provided for by the use of Geographical Note Books in the hands of the children.

At frequent intervals all the work already passed should be definitely reviewed by localities. That is, consider, for example, what are the products and industries of New England, of the Gulf States, of the Pacific States, of France; and, in this, always locate the product or industry and thereby furnish an occasion for finding the cause, if one exists, for such location. More specific directions are provided in the note books, arranged for seventh grade.

A very large number of the topics presented for study are intimately connected with the subject of manufactures and enter so intimately into commerce that a proper study of the topics will involve both the subjects just mentioned, but will not necessarily give a connected understanding of the essentials of manufacturing and commerce. These subjects are so important, the last twenty-five years having doubled their importance and the next twenty-five may double it again, and their essential principles are so simple and easily understood, that it would be unpardonable not to give the children an opportunity to see and understand them. For the purpose of an interesting review of all that has been learned touching these subjects and with the further hope of placing this information more nearly in its true relation and adding the new matter necessary to form an organized body of knowledge relating to both manufacturing and commerce, a special outline of each is given for separate study.

Geography has always been presented from the stand-

point of the scientific geographer. It has been simplified and popularized for school use, but the point of view has not been changed. This method of presentation has had generations of trial. Results fail to establish its wisdom. The great sweep of physical forces that shape the contour of continents, determine soil and climate and thereby decide the possible products of any given section which products, in turn, determine the industries, the occupations of the people and, largely, the possible reach of their lives, are all great controlling truths, but quite outside of the experience, the knowledge or the interest of the child. These must reach the children through their knowledge of some of the many products that are utilized in their daily lives. The child who has in hand some bread and molāsses has some basis of actual knowledge and sweetness of interest which would enable him to trace either product back to the place of its origin and think successfully of soil, climate and general surroundings. When he has done this for a series of properly selected topics, he may begin to see something of a law that determines the location of products and industries but he must approach the subject from the side of his knowledge and interest and not that of the wise geographer. It is not that we undervalue the truths of physiography, but that we wish children to understand them, that we must insist on a different method of presentation, hence, in the study of each topic, attention should be given to physical surroundings and climatic conditions that, later, by a course of the most natural reasoning, correct conclusions may be drawn regarding the great producing agencies of the world. It

follows from what has been said, that there will come a time when all that has been discovered that would find a place in Physical Geography should be considered by itself and with such additions as may wisely be given, and the knowledge placed in a consistent, organized whole. We are disposed to think this may best be done in the seventh year. This may be overdone, and for the purpose of giving a definite limit to what shall be attempted, an outline of the subject will be found in connection with the work of the seventh year of this course.

The subject shall not be dropped without a very vigorous protest against any method of handling that tends to divorce physiography from the general subject of Geography. It is the principles formulated in the former that determine the products and industries of any particular section and that enable those of sufficient maturity to see the nice connections and sympathies of the world's life. It gives the glow of romance to much of the business commonplace of the world. Hence, the truths of this subject should be presented to the children when they come to the place where they need to know them, which always is when they are seeking to properly understand the product or industry they are studying. Thus the study of each topic adds some specific fact and these facts eventually will become the inductive basis for the generalizations of physiography.

The exceedingly venerable definition of Geography: "A description of the earth's surface," has made cowards of us all and kept every writer of a text-book on this subject "describing" separately each small bit of the earth, quite

regardless of the useless and nauseating repetitions thus occasioned, and utterly blind to the fact that reasonably bright children, who are permitted to study the great products and industries of the world and learn to use good maps and product charts properly, can formulate descriptions for themselves that are much better because they spring from an understanding of the conditions that control production. It is time to know and dare to say, that only descriptions of certain great sections possessing marked and distinguishing peculiarities are needed. Again, the only law of association, so far recognized by text-books on Geography, is that of mere juxtaposition. Thus children have had presented to them the hard task of memorizing a mass of exceedingly dry and unrelated facts and have saved themselves from mental wreck only by the admirable powers of resistence to all foolish demands and their nimbleness in forgetting.

Make effective use of all that the "Complete Geography" furnishes in its text, its charts and, especially, in its maps. Also use the charts in the large atlas furnished, and let the children make similar ones for comparing products, industries and commercial transactions.

A few reference books that will be found especially helpful are Adam's Commercial Geography, MacFarlane's Commercial and Industrial Geography, Tarr and McMurry's Geography Nos. 2 and 3, Statesman's Yearbook. For a more complete list of Geographical books see our catalogue of Geographical reference books.

Commerce.

Commerce originally meant the trading of some surplus product by one man, or one community, for some other product possessed in overabundance by some other man or community. The labor and the time required to effect this direct exchange soon became apparent and brought about the use of a great variety of substances as a medium of exchange; but, as trade expanded, and involved more than one tribe or nation, these differences in the medium of exchange used by each made commercial transactions very awkward, and the necessity of agreeing upon some one substance as money became clear, and, by successive steps, gold has become the money of commerce the world over.

From the first, a large element of trade was the transportation of products. Men bore them on their backs at first and, in not a few places, even in commercial nations, they do so yet, and it is worth while ascertaining where such conditions prevail. Then pack trains were used. But trade increased and demanded vehicles that would enable draught animals to expend their strength to greater advantage. The use of various carriages compelled the building of public highways. Rivers lent themselves to a similar use, sail and row boats were used along the coasts, until the compass made all waters highways. Better facilities greatly increased the number of people connected directly or indirectly with commerce and all had a common interest in lessening the first cost of goods, rendering their transportation cheaper, quicker and safer. The lower

the price the larger the number of possible buyers, the quicker the delivery, the less danger of loss in transit, the less the loss to the merchant by robbery or piracy, the lower could they afford to furnish goods to the consumer. An intelligent selfishness, even, demanded protection from lawlessness, and men set about studying the problem and soon framed bodies of laws for the protection of property rights. Again, war always injures and, often ruins trade, so all interested in commerce, producer, transporter and consumer, have always been arrayed on the side of peace. During the earlier and more lawless period of trade, owners of large landed estates found a large source of revenue in bridging the streams and constructing roads across their lands and then furnishing military escorts for bands of merchants taking their goods across the country, but many of these land owners soon charged exorbitant rates or turned robbers outright, and this taught the people the necessity of owning the great routes of travel, and private roads, in time, became the "King's highway."

Transportation.

Improved highways and the protection of law made the transportation of goods more rapid and less expensive and safer so that there was a great increase of profits to the importing merchants. A fortune was sometimes made by the sale of a single shipload of goods. Such inducements soon brought the competition of more merchants which lessened the profits but lowered prices to the consumer. Reduced prices made possible a larger number of buyers and this required the importation of more goods,

causing a great increase of commerce. Then, as never before, the ingenuity of men was stimulated to improve transportation facilities and the result brought steam power to propel boats, first on rivers and, a little later, on the ocean, canals to avoid obstructions in waterways or to connect different river systems; then the railroads with their locomotives. But this ingenuity in mechanical construction and the added respect which the world was forced, reluctantly, to yield to the tradesman and mechanic, brought to all laborers a new dignity and the possibilities and incentives to a life of increased intelligence and greater comfort. Thousands of articles, heretofore brought from abroad, were soon made, by the use of clumsy devices operated by hand or foot power, in the homes of the peasantry. The aroused spirit of mechanical invention could not rest and the crude machine of the peasant's home was gradually displaced in most nations of the world, by the most intricate, delicate, automatic machinery, grouped in one great building, now known as a factory. These machines are, themselves, the creation of other equally sensitive, self-regulation machines and all such labor has curiously received the name stamped upon it by the *hand* work by which it was first performed and is called *manufacturing*. The value of the manufactured products in the United States, for the year just closed, 1902, amounted to over thirteen billion dollars, or enough to build a railroad to the moon and still leave a surplus sufficient to build a dozen, two million dollar residences for the officers of the road.

But modern commerce would be quite impossible had not

railroads been helped by the instantaneous means of communication furnished by the telegraph, invented a few years after the railroad had been shown to be practicable. This is now supplemented by the telephone and, in the near future, will be aided by wireless telegraphy. As necessities in the business of to-day, competition and a broader business intelligence have brought improved roadbeds for railroads, more powerful locomotives, larger freight cars, with special designs for various kinds of live stock and other kinds of freight, refrigerator cars and boats for fresh meats, fresh fruits and dairy products, larger and more luxurious passenger coaches, dining, sleeping and library cars, all these improvements accompanied by a reduction of one-half in both freight and passenger rates during the last thirty years. A postal system has been established, including postal cars and free delivery in both city and country having a cheapness, certainty and celerity of action that would be startling if it were not so common. Ocean cables now encircle the world. The expense for using such a cable thirty years ago, across the Atlantic, was five dollars a word, but is now reduced to twenty-five cents; there are built seven masted sail vessels, of 7,500 tons capacity, that by the aid of ingenious machinery, are operated by a crew of 18 men, steamships so large that it would require the contents of twenty-five freight trains of forty cars each to load one; and all these agencies of transportation, equipped with the most sensitive of safety devices, render shipments and travel actually more free from danger than driving on a well made road in the country.

Financial System.

The consideration of this topic would be incomplete if we did not include the financial system by which the business world pays its bills. To send money was long ago found both expensive and unsafe and has been gradually displaced by the use of commercial paper, checks, drafts and foreign bills, and this has almost entirely eliminated the element of expense and loss. This system of commercial paper is, however, made possible only by another system, that of banking. One can gain some idea of the magnitude of this part of the world's business life by recalling that the annual foreign trade of the United States alone is over two billion dollars, an amount which, if divided equally among all the men, women and children of the United States would give to each the sum of twenty-five dollars; and still the amount of our foreign trade is but a small part of the amount of our domestic trade, and the entire trade of U. S. is but a small part of the trade of the world. A fuller discussion of this matter will be found among the topics considered later under the heading of "Money," "Banking" and "Commercial Paper."

Each step, or phase, of this subject reveals itself to children by the simplest explanation and readiest illustration if we, ourselves, are clear-sighted to begin with. Years of experience with young people from fourth grade to high school has demonstrated the readiness with which they understand the great steps in the world's commercial development and also the clearness with which they see that this trade motive has been one of the most powerful

in civilizing, refining and bringing intelligent comfort to men, that the merchants of all ages from the packtrain to the palatial car and luxurious steamer have, unintentionally, been proving that broad-minded far-sighted business selfishness is but another form of altruism, that integrity and Christian character are business assests as real as lands and gold.

Home Geography.

The imagination must ever play an important part in all successful work in geography and the concrete material furnished by our home surroundings is largely that upon which we must rely for correct images. The real things, the actual work and business that may be seen, the physical conditions about us are first to be carefully and intelligently seen and then the imagination may build up a larger world of real things, activities and physical conditions, all somewhat like and yet unlike those with which we are already familar; but it must not be supposed that either children or adults have really observed many of those things that years have made familiar. Inaccurate, vague observations is neither knowledge nor a safe foundation for knowledge. The larger understanding of the world must begin by giving the children's observations very definite and conscious aim. Problems must be clearly conceived by the teacher and then definitely and plainly proposed before either interest or advantage can come from an attempt at their solution by the children. Irrelevant matter, however valuable in itself, should be mercilessly excluded from consideration; first, because it will confuse the children's thought; second, the one who is tolerated in this way is

deceived into thinking he is contributing something valuable, and finally it tends to fix a vicious habit of illogical thinking, so ruinous to all effective work.

The knowledge which children may be fairly expected to gather through well directed observations will, very naturally, group itself about the common foods and drinks, the fibers used for clothing, the building materials and the fuels, with something about transportation. The children can easily bring to the schoolroom samples of most of the cereals, of coffee, of tea, of sugar and, after they have been sufficiently studied, these samples can be placed in boxes or bottles of appropriate size and form, and, in a very short time, a most complete and useful cabinet will be formed. In a similar way, can the children observe fruits, nuts, spices and some of the more common special food preparations. The home, or the nearest grocery, will readily furnish specimens for study, and much more satisfactory work can be done studying specimens in the schoolroom than in the home or the grocery. A discussion of the common meats will lead to a knowledge of the kind of animal that furnishes each variety and some of the more marked characteristics in the life of these different animals. Nothing should be sought because it is remarkable or strange; choose rather the familiar things in order the better to see their great values, and let the novelty of the discussion and observation come from the more accurate and broader knowledge that may be gained by properly considering those things which the children may have thought they knew quite thoroughly before. No more valuable lesson can be learned by the children than that of the necessity

for accurate knowledge. The child that recognizes his weakness has taken the first step toward strength.

Let it never be forgotten that in carrying on this work a mass of loose, chaotic, half-knowledge which the children's experience has already furnished should now be corrected and made definite, and thus become a most valuable fund on which to draw in all future work.

A consideration of the important food products will very naturally lead to the further consideration of some of the most important matters required for their production; as soils, warmth, rainfall, methods of planting, cultivation, and harvesting. The further fact will come to the knowledge of the children that some of the foods are produced in our own country and some come from abroad and we must consider how to present as clearly as possible the matter of location.

Probably no better way of teaching children the meaning of a map, including the idea of relief, has been devised than that of having them take a bird's-eye view of some section and then show them how to make a sketch map representing its main surface features. With this will necessarily be associated that of some definite measurement that shall constitute a scale. No such excursion should be undertaken until the teacher has previously taken it and knows just what can and should be seen and has also instructed the children what is most important to look for. Mere going will not be seeing nor will it, necessarily, furnish anything educative.

Some observation of small hills and valleys, of watersheds and surface drainage and erosion in convenient nearness

to the schoolhouse should be made and will be understood. The value of surface cultivation in retaining moisture may be demonstrated by taking two boxes of the same size and filling them with the same kind of soil, then weighing them, and letting the surface of one be left untouched and that of the other be frequently stirred and kept well pulverized and both boxes be tested by weighing from time to time, thus children can determine, for themselves, one of the main objects in the surface cultivation of various crops.

The textile fabrics lend themselves to schoolroom observation with great readiness. If requested, the children will bring samples of different kinds of cotton, of woolen, of linen and of silk fabrics. These may be observed and compared and finally cut to a uniform size and pasted on cardboard of convenient size and laid away for future use. Almost always an inquiry will bring to the schoolroom the stalks of flax with the seed still on, stalks of cotton showing the fiber in the ball, always samples of wool, and sometimes of the silk cocoon. Flax and cotton seed may be planted and the plants observed during growth. Nearly every neighborhood can furnish a spinning-wheel, and a simple loom may be made, or bought, and thus may be gained a very intelligent knowledge of the essentials in the great textile industries.

The building materials are always at hand and samples may be brought into the schoolroom. If there is a stone quarry near, visit it, after determining what it is desirable to see; the sight of a brick-yard, a tile factory or a lime-kiln will be very helpful, but the products of all these may always be had. One or more visits to a house in process

of erection will be well. There is no excuse for not knowing at least a few of the trees that are especially valued for their lumber. Almost every neighborhood, prairie or woodland, has white pine, Norway pine, white oak, red oak, white elm, black walnut and hickory trees and these furnish a very large part of the world's lumber.

In studying a few of the more important processes in manufacturing, try to see but one, simple thing at a time. How is coal made to produce steam? How is steam taken from a boiler to a steam cylinder and made to move a piston? How can a belt from the drive wheel on an engine be made to turn a line shaft in a factory? How can water turn a wheel? Each of these questions is fundamental in the manufacturing world and each by itself is very simple, and a little observation by the children either singly or in groups, *after* the matter has been carefully talked over, will lead to a correct answer. Visiting a large manufacturing plant will not do it. In fact, such visits are of very small value to fourth or even fifth grade children.

Children can easily be led to see that each farmer spends quite an appreciable amount of time hauling his surplus products, milk, grain, live stock, to the most convenient shipping point. The amount of time and energy that this will require depends largely upon the condition of the roads and children can understand that a well rounded roadbed that has good surface drainage and a top finish of gravel or crushed stone is an economical investment of money. It is easily understood that to haul a ton of produce a mile, on even a good road, costs as much as it would to send the same material on a well equipped railroad twenty miles, or

by ocean steamer two hundred miles and that on a poor road the expense is more than doubled, so that it not unfrequently happens, that it costs a farmer more to haul his surplus product five miles from his home to the nearest railway station than it does to ship it from there to a market five hundred miles away, he, in the mean time, placidly continuing to drive through mud and "chuck" holes day after day, putting in his spare time complaining of "hard times" and the exorbitant freight rates charged him by railroads for taking his products to market. It is with the highways that we should begin to study the great problem of transportation.

It is frequently surprising that children have so large a fund of loose observation on the transportation problem. It simply needs to be made more definite and put into organized form. They will have observed wagons very differently arranged so as to be adapted to hauling different products, as gravel, coal, hay, corn in the ear, flour, unsacked wheat. They will have noticed railroad trains having cars adapted to carrying coal, loose grain, furniture, cattle, hogs, sheep, poultry, fruit, butter, mail, passengers asleep and passengers awake, passengers that are dining and passengers that are smoking. They may have noticed the springs under the passenger coaches, and may know something of the use of air brakes and automatic couplings. Help the children to put this into the form of conscious knowledge by learning, not only the use of each of the observed forms, but also to understand *how* each is adapted to its use.

If the work here outlined is successfully done the

children will have a very fair foundation for that larger knowledge which we hope to aid them in gaining. No special emphasis has been put on excursions in this work because it is believed that each teacher can best determine when that kind of work will be especially helpful. It has its place but it should be used wisely. A large part of excursion work, as it has been used, has simply furnished an occasion for a tramp in the woods or a frolic in the fields. The joy experienced and the health gained have, perhaps, justified it, but from an educative standpoint there must be great doubt of their value. If properly planned and one main purpose made the motive they are wise, and in some instances, they furnish the only means by which to learn the things desired.

All places referred to should be located in direction and comparative distance from home and the globes and maps used at every step to help in this matter. Have all wall maps hung on the north wall, and so far as possible, maps in books placed with their tops actually to the north.

While working on HOME GEOGRAPHY at such time as will be most helpful, have the children read "Seven Little Sisters" and "Each and All." It might also be well to re-read "Big and Little People of Other Lands."

Observation of physical features, of the action of water and of the formation of soils has not been urged beyond the most simple stages because it is believed that it is much better to leave a further study of the subject to a later period and to the needs of the special topics pursued, taking such features of Physical Geography as a clear understanding of the special topic demands.

Have the work well thought through *before* the children are asked to consider it and let the matters considered be presented with a reasonable regard to the law of logical sequence.

COURSE OF STUDY.

Third Grade.

During the last half of the third year the children should accomplish the work outlined under Home Geography. It is not intended as a formal study but that the children should work out, *with the teacher*, so far as their ability makes reasonable, the matters there considered.

Fourth Grade.

Begin the formal study of Geography, covering the first twenty topics with proper attention to reviews and formal drills on Locative Geography as indicated more fully below. The numbers of the topics correspond to those in the Geographical Note Book used by the children. (Topics 1 to 20, inclusive.)

Form suggested for the study of topics 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70.

Began——

Completed——

1. What it is and where largely found or manufactured. Have samples, drawings, pictures or other means of illustrating.

2. Reason for above location. Note anything in soils, winds, rainfall, mountains or valleys or other physical features as justifying the answer to the above question.

3. Processes in preparing for market. In the case of cereals, processes of planting, cultivation and harvesting. In the case of

manufactured products, give the important parts of the process, also special forms of life demanded of the laborer.

4. Important uses. Make prominent those of which the children have personal knowledge.

5. How taken to market. Forms in which prepared for shipment and any special method of transportation.

6. Cities from which, through which, and to which shipped. In tracing these shipments let it be carefully done and only those cities chosen that would be actually engaged in the business of the topic.

7. Annual value of the product. Use great ingenuity in representing in some graphic way these values instead of depending upon mere figures. Constantly compare the value of one product with that of some other. Use lines and charts such as may be seen in text-books or large atlases used for this purpose. When straight lines are used let one-half inch represent twenty million dollars. Carry this scale through the entire note book.

8. Exported to what nation. Imported from what nation, with reason for each. What nations compete in its production?

9. Connected with what other industry and how. This will prove especially valuable in developing, reasoning and real interest.

10. Note any important matters in the history of the topic.

Wrote paper on——

Estimate of the teacher on the paper——

1. Dairy Products.

All commercial products derived from the dairy except in a few countries are produced by the cow. In those few countries goats are used for that purpose. The important forms of these products are milk, butter, cheese, milk-sugar and butterine.

The dairy section of the United States. The dairy nations of the rest of the world. Reasons for each of these sections being largely devoted to the production of dairy products. The old method of producing butter was from cream raised in some form of pan or pail and produced

about three pounds of butter to a hundred pounds of milk. The present process is by the use of the separator by which about four pounds of butter are produced from a hundred pounds of milk. Saving from the change. Calculate the amount saved annually by a dairyman owning twenty-five cows. Amount of milk produced annually by a poor cow. An average cow. A good cow. What should the dairyman do in regard to quality of cows?

Cheese. How made. Regions in the United States. Outside nations. Use of whey in production of milk-sugar. Have samples of milk-sugar.

What is used with the cream or milk to make butterine? Special methods of producing butter and cheese in Norway, Switzerland and Holland. Form in which butter is usually shipped to market. Use of refrigerator cars in shipping. Value of promptness in delivery. From what cities butter and cheese in the United States are shipped. Value of butter and cheese produced annually in the United States. In the world. Do we export and to what nations. With what other industries intimately connected. What nations compete with the United States in the production of dairy products?

2. Corn.

Corn is the seed of a large grass. Make drawings; also pictures or drawings of the tassel and silk. Use of each of these. Corn states. Other nations that produce corn. Why largely produced in the United States. Character of soil and climate required. How planted, cultivated, harvested and prepared for market. Have pictures of machines

used. How is this industry connected with the beef and pork industry?

Products from corn: Starch, corn syrup, corn oil, grape sugar and whisky. Use of each. Corn as a food for cattle and hogs. Silos. Ensilage as food.

3. Beef.

One of the most important foods of the world. Beef producing states. Nations of the world that produce beef largely. What determines where beef can be most economically produced? Corn fed. Ranch fed. States where each method prevails. Six great stock yards of the United States. Economy of stock yards. Which of these first constructed? Why? Area of Chicago yards.

How fresh beef is marketed. Use of refrigerators. By-products: Hides, hair, gelatine, glue, oleo-oil, butterine, combs, buttons, special foods, knife handles, jet trimming, paper and fertilizers. From what part of the animal is each of the above made? Cities connected with this industry. Value of product in the United States. Exported to what nations and why?

What by-products are exported? Connected with what other industries? What nations compete with the United States?

Describe ranch life. Size of large herds. Early methods of marketing beef from western states. Why changed? Why are stock yards being built further west? Will this continue?

Nations that eat beef largely. What relation has this to the rank of a nation?

4. Pork.

Pork regions and dairy regions largely the same. Why? Why is corn fed to hogs instead of being shipped direct? Stock yards same as for beef. Form of product: Hams, bacon, sausage, salt pork. By-products: Skin, bristles, gelatine, glue. Value of product in the United States Exported to what nations. Pork eating nations.

5. Mutton.

Ranching states. Can sheep be allowed to graze with cattle? Method of shearing. Uses of skin. Number on western ranches.

Number of beeves, hogs and sheep annually brought to Chicago yards. Illustrate by calculating the number of cars required for each to accommodate a year's production, or the length of the highway that would be covered if driven four abreast.

6. Wool.

Wool is a fiber produced by sheep and differs from the hairy covering of most other animals by having little barbs which render it especially useful for textile fabrics and absolutely essential for felting. Get samples of wool and other hair for comparison. Have representative samples of the various woolen fabrics.

Wool producing sections of the United States. Of the rest of the world. What are the characteristics of the countries used for wool production? Would same regions be good for dairying?

Treatment of wool: Washing, combing, oiling, spinning

and weaving. How fabric is finished to produce the nap. Regions where finest wool fabrics are made. Standing of the United States in this respect. Is this changing? Why?

Wool and hair of rabbits largely used in the production of felt. Articles made from felt. Country producing the largest number of rabbits. Shoddy. Sweat-shops. Cities connected with the production of woolen fabrics. With the production of clothing. Value of annual product in the United States. In the world.

Some method of graphic illustration. Exports. Imports. Is this industry connected with any other and how? Important breeds of sheep. History.

7. Cotton.

Cotton is especially of value for the fiber connected with its seed. Cotton regions of the United States. Cotton regions of the world. Why are the regions above named especially adapted to cotton culture? Character of soil and climate required for upland cotton. For long fiber cotton. Difference between long and short fiber cotton. Planting, cultivation, harvesting. Important uses. In what form shipped to market. Cities of the United States connected with the trade in raw cotton. Cities connected with the manufacture of cotton cloth in the United States. Cities in the United States from which raw cotton is exported. To what cities exported in each of the following countries: England, France and Germany. Value of product produced by the United States. Cotton manufacturing cities of the world outside of the United States. What determines their location? Cotton imported into

the United States. Reason. This industry, how related to that of wool, linen and silk.

By-products: Cotton seed oil, cotton seed meal, cottolene and fuel. Value of by-products in the United States. Important processes in the manufacture of cotton cloth. Compare the cloth made in the mills of the North with that made in the South. What nations compete with the United States in the cotton industry?

8. Silk.

Silk is a fiber produced by the silk worm. Make drawings of the worm, the cocoon, the moth. If possible have a sample cocoon for study, also have a variety of samples of silk. What regions of the world best adapted to raising the silk worm? Why? Food of the worm. Conditions necessary for its health and growth. Treatment of the cocoons. Reeling silk. "Spun" silk. Silk manufacturing cities of the world. Cities from which raw silk or silk cocoons are shipped. Value of silk fabrics produced in France. In the United States. Compare these values with the value of cotton and wool goods produced. Growth of silk manufacturing in the United States during the last ten years. How does this effect silk manufacturers of France? How is cheap labor connected with the production of raw silk? Will the United States probably produce raw silk largely? Nations that compete in the production of raw silk. In the manufacture of silk goods. How was the silk industry introduced into Europe?

9. Flax.

Flax regions of the United States. Of other parts of the world. Climate and soil best adapted to flax culture. Methods of sowing, cultivation and harvesting. When raised for fiber it should be harvested before the seed is ripe. Reason. Process of retting, breaking, scutching, spinning and weaving. Compare these processes with those used for cotton and wool. When raised for seed not sown as thick and harvested when the seed is fully ripe. Method of extracting the oil. Uses of oil, and oil cake. Difference between linseed oil and other oils when exposed to the air. Have samples of important kinds of linen. Cities that ship flax fiber, linseed oil, paints. What industries most intimately connected with that of the flax fiber and of linseed oil. Value of flax fiber of the world. Why does the United States raise flax largely for seed and not for fiber?

10. Lumber.

Lumber is material produced by sawing various trees into convenient forms for different structural purposes. It is found generally through the temperate and sub-tropical regions of the world and is generally divided into hard and soft lumber. The important varieties of each studied from samples and recognized in furniture, inside and outside of buildings. Important kinds of soft wood lumber: white pine, yellow pine, red cedar, spruce and hemlock. Hard woods: white oak, white ash, cherry, white wood, walnut and mahogany.

Lumber regions of the United States for soft wood. For

hard woods. Lumber nations of the world producing soft woods. Hard woods. Reasons for the locations of above named. Methods of cutting and rafting lumber. Kind of life in lumber camps. Important use of each of the different kinds of hard and soft lumber. How lumber is taken to market. What part of rivers may be used for this purpose and why. Rafting steamers. Cities of the United States connected with either the cutting, the sawing, the shipping or the marketing of lumber. Value of the lumber product in the United States. Do we export and to what nations? Do we import? From what nations? With what other industries connected and why? What nations compete in the production of lumber?

First Review.

(Topics 1 to 10 Inclusive.)

1. Difference in temperature and rain-fall required for the topics so far studied.
2. Kinds of soil required.
3. Which of the most value to us. Which of the least value to us.
4. Comparative annual value of the products studied. Use some form of diagram. (Let $20,000,000 be represented by $\frac{1}{2}$-inch.)
5. Which are manufactured products.
6. Which products require a large amount of work to prepare them for use.
7. What about the education and skill needed in the separate parts of the different kinds of work.

8. Is it a good, or a bad thing for the people that the articles made for use require a large amount of work for their preparation? Why?

9. Where could you buy a large supply of each of the products studied?

10. According to what measure is each sold? Show your teacher each kind of unit that would be used.

Locative Geography for Drill.

(Use maps made by the children, the maps in their geographies, but *especially wall maps for class drill*. Nothing has been found as valuable.)

Associate with each topic only those cities of which it is a marked characteristic. Do not select too many.

1. Cities in U. S. connected with feeding and shipping beef.

2. All cities of U. S. largely engaged in slaughtering cattle.

3. Cities in U. S. where corn is made into syrup, grape sugar or whisky.

4. Three silk manufacturing cities of U. S. Two of France. Six foreign cities from which raw silk or silk cocoons may be had.

5. Cities of U. S. engaged in the manufacture of linseed oil. Cities of Russia that ship flax fiber. Cities of the world most noted for fine linen fabric.

6. Cities, foreign and domestic, largely connected with shipping and manufacture of wool.

7. Cities of U. S. largely engaged in handling and shipping raw cotton, either to other places in U. S. or abroad.

8. Great cotton manufacturing cities of the world.

9. Cities of U. S. largely engaged in sawing or marketing lumber.

10. General drill. Comparing cities as to size, as to industries, as to latitude.

11. Stone.

Have samples of each kind of stone studied.

Important varieties: Granite, limestone, marble and sandstone. Important granite regions of the United States. Of Scotland. Three important uses. Most important qualities of granite. How does it compare with limestone. Difference between common limestone and marble. Some important limestone and marble regions. Three uses of common limestone. Two uses of marble. Use of limestone in making cement. Cement is mixed with sand, crushed stone or gravel, to form concrete, one variety of which hardens in water. For what purpose is concrete used? Its use rapidly increasing. Under what circumstances will it be necessary to use hydraulic cement, and why? Do we import cement? Important sandstone regions of the United States. Some important varieties of sandstone, brownstone, bluestone. Slate regions of the United States. Important uses of slate. What quality of this rock makes it valuable? Why will all qualities of stone never enter largely into commerce? What kinds are imported or exported? What are some of the fine marble regions of the outside United States?

Nearly all varieties of stone harden after being taken

from the quarry. Is this an advantage in using stone for building purposes?

12. Brick.

Kind of clay used in the manufacture of brick, terra cotta. Present day methods of making bricks. Differences between common brick, pressed brick, fire brick, hollow brick and paving brick. Are these products shipped long distances? What kind of brick do we import? Is proper kind of clay hard to find? Value of this in building.

13. Coal.

Study the two varieties, hard and soft coal, separately. How is each supposed to have been produced? Note difference. Location of hard coal and of soft coal mines of the United States, of Great Britain, of France, of Germany, of Austria, of Russia. The coal supply of other nations of the world. Number of square miles in hard coal regions of the United States. Coal mines are opened either by sinking a shaft to the vein, by tunneling to the vein horizontally, or, when the vein appears on the surface, by opening it direct. Method of mining hard coal. Life of the miner. His average weekly wages. The breaker boy. The door tender. The miner's helper. Use of the "breakers." Thickness of a vein of coal in the hard coal region. Depth to which the hard coal mines are sunk. Important uses of coal. How coal is taken to market. When owners in coal mines are also part owners of railroads that convey the coal to market, what harm may come. Square miles of soft coal regions of the United States. Annual value of soft coal product of the United States.

Does the United States export coal, what kind and to what nations? Will this continue? Does the United States import coal and, if so, from what place and why? The relation of coal to manufacturing. Is the coal product of the United States likely to be soon exhausted? How is this in England? In France? Consumption of coal rapidly increasing. Reason. Burning smoke. Improvements in the methods of combustion and steam production. When was coal first used to any extent in the United States?

14. Petroleum.

Petroleum is an oil believed to be connected in some way with the coal formations of the world, and is obtained by drilling. It is usually found in layers of sand and oil where it overflows at the surface, or is brought up by pumps. In some localities the drill will first strike an ample water supply, and then before the oil is reached a quantity of natural gas be released. Uses of natural gas. Three regions for natural gas. Show how this arrangement makes the erecting of the pumping stations for the oil both cheap and convenient. The great petroleum regions of the United States. Of Southern Russia. The marked difference between the oil produced in the Russian, and in any American region. The great uses of petroleum are for fuel and for illumination. To which of these purposes is the Russian oil best adapted? Method by which petroleum is taken to the refinery or to a market. The main purpose of refining petroleum. The important product sought is kerosene. Some of the

by-products: Naphtha, gasoline, lubricating oils, paraffine, coal tar and asphalt.

The value of the by-products more than pays for the first cost of the oil and all of the expense of manufacture. What is meant by the test for kerosene of a 110 degrees. 140 degrees. 150 degrees? The value of the petroleum products of the United States. Of the petroleum products of Russia. Large increase in the oil used. Exported largely to what countries, and in what manner. Is the product increasing more rapidly than the demand for it. How is petroleum related to manufacturing? To other industries? When was petroleum first known? What relation to the petroleum is held by John D. Rockefeller? What of his income and wealth?

What asphalt is. Regions of the world where largely produced. How used. How is it related to petroleum industry?

Peat. In what region found. Procure sample if possible. For what used.

15. Wheat.

A kind of grass. Make drawings of head of wheat, bearded and without beard. Have pictures of wheat fields and machinery used in wheat production.

Wheat regions of the United States. Of the world. Why these regions are used for the production of wheat. Kinds. Methods of sowing, harvesting, threshing and marketing. Methods of management on great wheat farms. Method of construction of elevator and its use.

Wheat used for bread, for macaroni, breakfast foods.

Straw used for the production of paper and for hat braids. Where fine braids are most produced. Method and cost of transportation. Methods of loading and unloading. Cities of the United States connected with this industry. Cities in other nations. Value of annual wheat crop in the United States. In the world. Illustrate in some graphic way. Compare with value of corn crop. With value of beef or pork. Exported to what nations. Do we import? Why? Is this industry connected with any other and in what way? With what nations does the United States compete in its production? History of wheat.

16. POTATOES.

Regions adapted to the cultivation of Irish potatoes. Of sweet potatoes. Why potatoes are used near the place of production? Why the name "Irish" is applied to one variety. What cities of the United States, if any, especially noted for trade in potatoes? How shipped in winter. Uses. History. Sweet potatoes. Climate and soil adapted to their cultivation. Does the Irish potato thrive in same region? Are both kinds of potato roots? Methods of cultivation and harvesting each. Which keeps best? How does this limit the use of sweet potatoes? Which is more generally used? Why?

FRUITS. 17. DOMESTIC. 18. FOREIGN.

Important varieties produced in the temperate climates. Apples, grapes, currants, peaches, and berries. By special study find why the following regions are especially adapted to fruit raising: South-western Michigan, Central Illinois,

Northern Maryland. Conditions of soil and climate. Regions of the United States raising each of the above kinds of fruits. Why fruits are canned. Important part of the process. Some of the tropical fruits. Oranges, lemons, dates, figs, bananas and olives. Methods of cultivation, harvesting and preparation for market. From what cities and to what cities shipped. Special methods of transportation required.

19. Transportation.

(Make drawings or secure pictures to illustrate the parts of this topic.)

1. Old methods on land. Nations still using them.
2. Old methods of water transportation. Nations still using them.
3. Use of steam in water transportation.
4. Canals. Where placed. Use and construction of canal locks. Why are not canals used as much as formerly?
5. Locate the Suez Canal, the Welland Canal, the Erie Canal.
6. Use of steam in land transportation. (Railroads) Where first used in the United States. How is the railroad aided by the telegraph?
7. What is meant by a "Trunk" line of railroad? Why is a "Trunk" line better for the people than a short line? Name and locate one or more "Trunk" lines of railroad.
8. Why boats, cars and locomotives are larger now than formerly. How does this help the shipper? The railroad?

9. Average cost of carrying a ton of freight a mile on a poor highway. On a good highway. On a poorly equipped railroad. On a well equipped railroad. On a canal. On the great lakes. On the ocean.

10. Comparative comfort and cost of travel now and in former days.

20. Postal System.

(A great variety of pictures will be valuable in illustrating this topic.)

1. Envelopes of "Washington's" day and former manner of sealing an envelope.

2. Method of making envelopes now. Rapidity and expense.

3. Cost of writing paper then and now. Sample of each. Reason for the change.

4. Manner of carrying letters from Boston to New York in 1790. Amount of mail matter carried then. How carried. Were newspapers included?

5. Discuss both items as they are to-day.

6. Compare the rate of postage then and now.

7. What kinds of news were carried in the mail then? Now?

8. The population of the United States is now twenty times what it was in 1790. How does the mail matter compare? What conclusion from this?

9. Use of "dead letter" office. Where is it?

10. How would business be affected and why if the postal system of the United States were discontinued?

Second Review.

(Topics 11 to 20, Inclusive.)

1. Two topics that have been studied that are of especial advantage and aid all forms of business. How in each case.

2. How does cheap transportation effect Minnesota wheat growers?

3. How does the iron industry depend upon coal? Which iron producing region has the advantage and why, Michigan or Alabama?

4. Kinds of stone used in different houses you have seen?

5. What two substances are used with the stone to make the walls of a stone house? What is each of these two substances made from? When mixed together what is the mixture called?

6. Which costs more at Scranton, Pa., hard or soft coal? At Chicago? What reason in each case? If there were no railroads, would we heat our houses as we do now? Would stoves cost more or less than now? Reason in each case.

7. In what different ways do you use some product of petroleum in your home?

8. What cities in the United States have an industry that injures the most important industry of Lyons, France?

9. What different kinds of stone that you have studied could be seen in the cemetery?

10. What domestic fruits depend for their possible marketing on quick transportation and special form of car? Trace such a shipment.

Locative Geography.

(Topics 11 to 20, Inclusive.)

1. Cities that are directly connected with the canals that have been studied. Are these also railroad cities and does this help or hurt the canals?

2. Cities that are great railroad centers as far as you have studied.

4. Cities that are noted for quarries of granite, marble, limestone, slate.

5. Cities of U. S. directly connected with the mining of hard coal, soft coal, with the marketing of coke. Coal distributing cities.

6. At least one city connected with the petroleum wells in each of the following regions: Western Pa., West Va., Cal., Texas. Two cities connected with Russian oil fields. Three oil refining cities of U. S.

7. Five places in U. S. making brick, tile or terra-cotta.

8. Five cities of U. S. largely engaged in grinding wheat. Two cities of U. S. that export wheat.

9. Cities that would handle large amounts of Irish potatoes. Sweet potatoes.

10. General map drill on location, size and general advantages of the different cities above named. Latitude.

Fifth Grade.

The work of the year covers topics 21 to 45 inclusive, with reviews and formal drills in Locative Geography as indicated. (Topics 21 to 30, inclusive.)

21. Coke.

Coke is the unconsumed portion of soft coal that has been heated in ovens for the purpose of driving off volatile substances. The great coke producing regions of the United States. Use of coke as a fuel in the manufacture of iron and steel. Substance produced from the volatile part of the coal: Gas, ammonia, coal tar, aniline dyes, medicines, and various chemical compounds used as artificial fertilizers. Compare this coke with the coke produced at gas works. If coke were no longer manufactured, what industry would suffer most?

22. Iron. 23. Steel.

Have samples of ore. The most important varieties are, red hematite ore (Bessemer ore) and carbonate. Important regions that produce Bessemer ore and carbonate. Construction of smelting furnaces. Process of smelting. Production of pig iron in the world. In the United States. Special methods of taking ores to the smelter. Construction of vessel for carrying ore. Machinery for loading, and unloading it. Important smelting cities of the United States. Reason for their location. Process of making Bessemer steel. Why cheaper than formerly. Wages in the steel mills. Compare the amount of pig iron produced annually in the United States, with that produced in the United Kingdom, in Germany. Cities of the United States engaged in the manufacture of steel. Difference between the Bessemer process, and the open hearth process. Can iron

ore be converted direct to steel? Steel manufacturing cities of England. Reason for their location. Of Germany and reason for their location. Why is steel used for many purposes where iron was formerly used? Use of structural steel in high buildings, large boats, and bridges. Value of the world's product of steel. Of the product of the United States. What form of steel products do we export? What makes this possible? Will it increase or decrease? Process of hardening and tempering steel implements. Most important uses of steel. Note carefully with what other industries the production of iron and steel are connected. What nations compete in the production of iron and steel?

24. Gas.

In olden time, no systematic method of lighting cities was used, and, as a consequence, streets were either altogether dark when there was no moonlight, or very imperfectly lighted. Torches made by the use of various oils were used but, as the illuminating material was expensive and was not always readily obtained and stored, the results were unsatisfactory. But dark streets gave the opportunity for crime which forced the law-abiding elements of cities to insist on some plan more adequate. This, in many communities, resulted in a law requiring each householder to place a lighted lantern in front of his door. In the meantime, men in England and in America had learned that, by heating soft coal in an oven, or retort, a gas was driven off that, when lighted, would burn with a steady light, and also that the gas thus produced was comparatively

cheap, but an imperfect knowledge of methods for the manufacture of this gas and a fear that the gas was poison and was liable to produce very destructive explosions prevented its use in both the above named countries for many years, and it was not till 1813 that it was used in London and about nine years later in Boston. After this its use rapidly spread until now almost every city of five thousand or more people has a gas plant owned by the city or some private company.

The general method is to have a series of brick ovens, or retorts, filled with the proper quality of soft coal, placed above very intensely heated furnaces thereby forcing from the coal a large volume of gases and oils, which may be conveyed in pipes through proper separators and purifiers by means of which they are prepared for general use. By this process, there are produced not only illuminating gas, but ammonia, various oils, coal tar, from which is obtained various medicines, and dyes, and asphalt, besides the solid mass, called coke, still remaining in the ovens One ton of coal may be made to yield 10,000 cubic feet of gas and still leave 1,500 pounds of coke. This gas is stored in large reservoirs so arranged that a considerable and a uniform pressure is exerted on the gas by means of which it is forced through pipes to all parts of a city.

Natural gas is found in many places, as at Fredonia, N. Y., Erie, Pa., Liverpool, O., Hartford and Muncie, Ind. and many other places. In most cases where gas has been obtained by drilling, if the opening is continued to a

lower level, petroleum is obtained also. This doubtless shows the latter in some way to be the source of the former. In many cases, the gas escapes from its well with great force and can consequently be carried by pipes for some distance to be used for lighting purposes or as a fuel, but in most cases the pressure and the supply of gas lessens after a time and in many wells the flow of gas has entirely ceased. This is especially true in the gas belt of Ohio and Indiana.. In this region, the cheapness of natural gas as a fuel induced the building of many glass factories, but the lessened gas supply has forced the abandonment of a large number of these plants, and caused a great financial loss, and Pittsburg has become the center for a large part of the glass making for the United States.

25. Glass.

Important materials used in the manufacture of glass. What determines the place for its manufacture? Processes of manufacturing window glass. Plate glass. Cut glass. Pressed glassware. Annealing and hardening. Manufactured near its market. Why? Important uses. Cities of the United States engaged in its manufacture. Does the United States export and why? If so, what qualities of glass? Import? What quality of glass and why? When window glass came into common use in England.

SPECIAL FORM FOR THE STUDY OF MANUFACTURING.

1. Give samples of raw material. Different kinds of manufactured products required as raw material at a piano factory or at a factory condensing milk.

2. In your city, what factories use water power? What use steam?

3. How is water power obtained? What coal mines nearest?

4. How is water power obtained at fall in a river? Why is the upper course of a river best adapted to yield water power?

5. Select five cities on the Atlantic slope of U. S., each of whose location has been determined by fall or rapids in a river.

6. How does electric power enlarge and improve the application of water or steam power?

7. Show the connection of manufacturing and coal production and give some illustration.

8. Relation of intelligence of workmen to successful manufacturing. What is the best market?

9. Value of improved transportation facilities in marketing goods. Name improvements and explain the improvement in each case. Things we formerly bought in Europe we now manufacture and sell there. Explain.

10. Reason for location of Stock Yards at Chicago, at South Omaha, Zinc Works at La Salle, Ill., Cotton mill at Charleston, S. C., at Fall River, Mass.

26. MANUFACTURING.

Successful manufacturing demands proper raw material, sufficient power, workmen of requisite skill and intelligence and a profitable market for its product.

The meaning of raw material should be discussed and illustrated, and the children shown that the finished product of one factory or business, becomes the raw material for the next. The ore, ready for shipment, is the finished product of the miner and becomes the raw material for the smelter who

produces pig iron upon which the steel maker works to produce steel billets; these, in turn, are drawn into wire at the wire mill to be used by a barbed wire factory in making a part of the raw material for a fence to enclose a field of wheat. Again, this wheat, the farmer's finished product, is converted into flour by the miller, into bread by the baker, and then becomes a part of the raw material for a breakfast for the boy who, if it is not putting too fine a point on the matter, will use the breakfast to aid him in understanding this topic. Observe some home industry and note the number of different lines of work that must contribute raw material for its product and see into what industries this, in turn, will enter. The incidental lesson of the close sympathy and interdependence of the different industries of the world is exceedingly valuable.

Illustrate and explain power in the sense here used. It must be either water power or steam power. For the former, only the smaller rivers and the upper course of large ones are available as the lower course of the larger rivers is more valuable for commerce; but, to deprive power from any stream, there must be a fall, natural or artificial, the amount of power being equal to the weight of water resting on the blades of a turbine water-wheel set in a wheel pit on the level of the water below the fall.

Since all the water that passes through the wheel must be discharged back into the stream below the fall, it is clear that a canal, or race, must be constructed along the river bank by which the water is conducted to the wheel and that this water must be controlled by gates at the opening

of the race and, also, where the water is discharged onto the wheel. Examine raceways and drawings showing their construction. Also examine turbine water wheels and pictures and drawings of them; for several reasons the drawings are more helpful than the wheel itself. A catalogue of such wheels can be had, for the asking, from the nearest water power owner. An old paddle wheel, surrounded by drooping willows and near a vine-covered mill, taking its water power direct from a stream, furnishing about enough to sprinkle the streets of a thriving village, may furnish a picturesque decoration for a page in the latest geography, but it is very bad business knowledge.

Since the upper course of a river is the part where the descent is most rapid, it follows that it is along this part that dams can be most advantageously built. Even a twenty-four foot dam may not flood any great amount of the valley, while, in a nearly level course, not more than a six foot dam would be practicable. Hence the rough, uneven country with sharp slopes will furnish much greater possibilities of water power than a comparatively level country. Again, the sections having sharp slopes, with soft rock underlying hard surface rock, will have numerous falls and rapids made by the erosion of the swift flowing streams. No more interesting or remarkable illustration of what has just been stated can be found than that offered by the Atlantic slope of the U. S. Here may be traced an irregular water power line along the base of the slope from Maine to Alabama, coming almost to the coast in New England and receeding westward with the mountains from the Potomac south. It is of interest to note, also, that this

line and that limiting tide-water are, practically, the same. The advantage of having water power, with its possible industries and resulting centers of population, near good harbors and cheap transportation, appears very clearly. New England seems marked out, by the Great Designer, as a manufacturing center. A serious study of the location of cities that owe their existence largely to the water-power possibilities of their site amply repays the effort.

Bangor, Me., is on the Penobscot River, where it is joined by the Kenduskeag River which carries a large volume of water and has a heavy fall one-half mile from its mouth. The Penobscot, below this point, is a tide-water river and capable of floating large boats. Waterville, Me., is at a 15 foot fall of the Kennebec River. Lewiston, in the same state, is where the Androscoggin takes a 60 foot plunge. Concord, N. H., is at a fall of the Merrimack, and Manchester in the same state, is beside a rapid of the same river making a descent of 54 feet within a mile. Nashua, N. H., is situated at the mouth of the Nashua River, where it falls 65 feet in two miles as it empties into the Merrimack, while Lawrence, Mass., has a 28 foot dam. Lowell, Mass., is by a 33 foot fall of the Merrimack, just where the Concord River empties into it and the natural power of this fall is largely increased by a race from the Concord that gives a 24 foot head. Holyoke, Mass., the great paper mill town, utilizes a 30 foot fall of the Connecticut River, supplemented by a 30 foot dam, giving the enormous power of a 60 foot head. Georgetown, D. C., is at a fall on the Potomac. Fredericksburg, Va., on the Rappahannock, Richmond, Va., at the fall of the James,

and Petersburg, just below the falls of the Appomattox, are further illustrations. Other sections should be studied with the same purpose. These centers of power, together with others still greater, have their possibilities greatly enlarged by the use of electricity whereby power may be transmitted to a distance of 50, or, possibly, 100 miles from its source with very little loss, thus permitting the location of great manufacturing plants where they can better secure their raw material, obtain better and cheaper transportation facilities, gain a more desirable or healthy location for their employes, or, possibly, place their factory where a more satisfactory class of laborers can be had. Electricity, however, must not be considered an independent power. It must be generated either by steam or water power.

The problem of using steam as a power is almost entirely one of cheap and appropriate fuel. The cost of transportation, however, is a very large factor and must always be considered. Devices and inventions rendering the combustion of fuel more nearly perfect, have also wrought vast changes so that it is said one pound of coal now will accomplish what would have required three pounds twenty-five years ago.

As to intelligence and skill of workmen, one might profitably inquire why the attempt to manufacture cotton cloth in the South eighty years ago failed and a similar attempt now succeeds; or how it is that, until a few years ago, we bought steel rails from Europe and that, now, we are selling steel rails in the same market, or why the United States is now producing more silk goods than France, a change that

is seriously crippling the silk-weaving industry about Lyons. Other illustrations will be continually coming to light, if we are watching for them, and we do nothing well in which we are not sufficiently interested to be on the watch.

A prime consideration in marketing a product is the number of people who are able to buy; and this is determined by density of population and the average wages paid the mass of people always materially effected by their habits of thrift or improvidence. So, other things being equal, a factory is well located as to market for its products when it is surrounded by a population needing and able to buy its goods. This is well illustrated by the cotton mills of the South. They make only the cheaper grade of cloth and they market it largely in their immediate vicinity.

In securing the necessary raw material, as well as in marketing the manufactured article, transportation becomes both interesting and important. Facilities for loading and unloading must be the best so that the time required to handle a carload of goods is reduced to a few minutes. A ship load of 5,000 tons of freight is now loaded in an hour. All expenses for teaming must be eliminated, and, if possible, side tracks from two or more competing railroads must reach the doors of the factory. There are few small towns, even, that do not furnish opportunities for studying business methods that confirm the principles just stated, and, also, others that disregard them, and nothing is better than such concrete studies. The subject of freight rates and the changes by which, during the last twenty-five years, such charges have been reduced half and at the same time the promptness and certainty of

the safe delivery of goods greatly improved are very interesting. Better roadbeds for railroads, heavier rails, more powerful locomotives, larger cars, vastly larger boats, with greatly improved machinery, all supplied with the best safety devices; larger canals supplied with improved locks, deepened rivers, improved harbors and harbor guides have all contributed to this result, and ignorance of these things is certainly unpardonable.

A study of the value of an industry to the town in which it is located is one easily made and is especially fruitful of the best and most practical results. Ascertain, approximately, the weekly pay roll of a local factory, employing 250 men, earning on an average $12.00 a week, and it is seen that it means over $150,000 a year, nearly all of which is expended locally and goes for food, clothes, homes and folly. Besides, there is an increased assessment on the plant and the property of all kinds owned by the employes to yield local taxes. This is entirely aside from the influence such a factory and its employes have upon society, education and religion.

Finally, after all the essential matters entering into successful manufacturing have been intelligently discussed, try to determine why great steel mills were located at South Chicago, stock yards at South Omaha, a paper mill at Kaukauna, Wis., zinc works at La Salle, Ill., and so on. The thoughfulness and reasoning required are both helpful and stimulating.

Special Form for Study of Money.

1. Illustrate barter and its difficulties.
2. The way in which some medium of exchange helps trade.
3. Give illustration of each kind of money mentioned in the Manual.
4. Show how money that is good in one tribe or nation may be changed when it trades with other nations.
5. Effect of increase of commerce on what would be best to use for money.
6. The way in which money is a measure of the values of various commodities.
7. The difficulties of having some common product, cattle for instance, used as a measure of values of other things, as land, clothing, weapons, building material. Think how the people would be compelled to make change.
8. Uses of gold and silver besides that for money.
9. Real value of wood or iron compared with gold or silver.
10. What is done at a mint?

27. Money.

Illustrate barter among rude people of the same tribe. Note the time and effort necessary for a man, having a surplus of any commodity, to find some other man who wished it and who also has something he can spare that is wanted by the first man. As occasions for barter increased and higher ideals of life developed, the complexity of the situation would lead to the discovery of some substance,

easily portable and not subject to serious change from handling, that could be received for surplus products and then given to others in exchange for things desired. This medium of exchange might be cattle (see meaning of words feudal, pecuniary), smoothly rounded pebbles, small shells, pieces of iron, bits of copper, precious stones, grains of silver or gold. It would matter little what was chosen so that all in the tribe or nation agreed on it, but when expansion of the trade, seeking greater comforts or luxuries, reached out to some other tribe or nation it would be necessary that this new people should be satisfied with whatever is offered as a medium of exchange, and this might require the selection, by one or both peoples concerned, of some different substance believed to be better adapted to purposes of trade than the old one. Improving civilization would reveal the advantages of commerce to a constantly increasing number of nations and this would force some agreement as to a common standard, as a measure of values among all trading nations. This has resulted in the adoption of gold as the money of the commercial world.

The true use and value of money and the part it is required to play in business life should be clearly seen by the children and this requires some positive and simple teaching. The vicious and erroneous ideas held on this subject are sufficient warrant for the effort necessary to correct them.

28. Gold.

Important mines of the United States. Of other parts of the world. Distinguish between placer mining, and quartz mining. Treatment of gold ores. Cyanide process. World's annual production, two hundred sixty-five million dollars. Annual production of the United States, eighty-eight million. Of the Transvaal. Of Australia. One-fourth of the gold output used in the arts, the remainder coined. Reason for the use of alloys in gold coin. Effect upon values of a large increase in the production in gold. What is done in the mint. Is gold imported and exported? Cities of the United States most largely connected with gold mining. Cities in which mints are located. Is gold connected intimately with any other industry? How?

29. Silver.

Silver mines of the world. Treatment of silver ore for refining. Annual output of the world, one hundred ten million dollars. Of the United States, thirty-seven million. One-sixth is used for coin, the remainder used in the arts. Would a large increase in the production of silver effect business as a similar increase in the production of gold would do? Are alloys necessary in the coining of silver? Connection of silver with other industries.

30. Salt.

Salt is found either as a brine or in the form of a rock. Regions of the United States where it is found as a brine. As a rock. Process of preparation for use in each case.

Great salt mines outside of the United States. Preparation of salt from sea water. Important uses: As a seasoning for food, as a preservative, in manufacturing of chlorine for bleaching cloth and straw, and for making compounds of soda used in the manufacture of soap and glass. Reasons for saltness of lakes that have no outlet. Advantages and disadvantages of the saltness of the ocean. Form in which shipped. Value of the United States product. Why much cheaper now than formerly. Life in one of the oldest salt mines of Europe.

Third Review.

(Topics 21 to 30, Inclusive.)

1. How is money a means of saving time in carrying on business? Why is not Indian Wampum good money for business?

2. Which is the cheapest building material here, brick, limestone or pine lumber? Why?

3. Compare the value of the gold mined, annually, in U. S. with that of the hay crop, with the value of the eggs laid, with the value of the meats handled in the Chicago Stock Yards. Suppose no gold was mined in the world for a year, what? Make same supposition as to other products. Compare.

4. Select five regions of U. S. especially adapted to manufacturing and show why in each case.

5. How does manufacturing help the farmer? The ranch owner?

6. Why is salt cheap? If there were no mines, how could it be obtained? How would a tax on salt be hard

for the very poor people? Has any country ever had such a law?

7. Where is the iron ore of Northern Michigan made into iron and steel products. Trace the route for shipment. What makes it possible to transport the ore so far and yet have the products cheap?

8. How is the iron industry connected with the building of great ships, high buildings, railroads? Locate three cities that build large ships.

9. How is coke connected with steel making? Why must coke ovens be near coal mines? Give two places so situated.

10. Name the food products studied so far. The textile fibers. The building materials. The fuels.

Locative Geography.

(Topics 21 to 30, Inclusive.)

1. Ten cities of the U. S. connected with the production of pig iron and steel.

2. Two cities of U. S. producing coke to be used in making steel.

3. Five U. S. cities that make large amounts of glass.

4. Ten U. S. cities that are important because of a fall or rapid in a river.

5. Ten U. S. cities that owe their location and growth to the nearness of coal.

6. Gold mining cities of the world.

7. Cities depending in any large way on Silver Mining.

8. Salt-producing cities of U. S.

9. Ten foreign cities largely engaged in the production of iron and steel.

10. Compare above cities as to size, as to industries and as to climate.

31. Spice.

Important substance used as spice and for seasoning purposes are black and white pepper, cinnamon, cloves, allspice, nutmegs, mace and ginger. Be certain that the children note by observation each of these. Regions in which each is produced. From what cities shipped and for what purpose used.

32. Tea.

What it is. Have samples of leaf and drawings and pictures of the plant. Character of the plant. Way in which the plant grows naturally and how this is changed by cultivation and why. Two raising countries. Picking, fermenting, firing and boxing the tea for shipment. Differences in the preparation of green and of black tea. Exporting cities. Importing cities. Tea drinking countries. Number of pounds of tea used per capita in England. In United States.

33. Coffee.

What it is. Illustrate by drawings, pictures and samples of the berry. Where it is grown. Character of the tree. How changed by cultivation. When the crop is harvested and how. Why it can be raised only in semi-tropical regions. Processes in preparing the berry for market. The effect of roasting the berry. Artificially produced coffee. Uses of the pulp, the outside covering of the berry

and the leaf of the tree. Number of pounds of coffee used per capita in United States. Other coffee drinking nations. Four varieties. From what cities does United States import? Coffee raising regions of the world.

34. Cocoa and Chocolate.

What it is. Character of the plant upon which it grows. Preparation of the bean for market. Subsequent treatment to produce commercial chocolate and to produce cocoa. Cities in which this is done. Sweet chocolate. By-products: Cocoa shells. Cocoa butter. Cities from which the chocolate bean is shipped. Cities of the United States to which it is largely shipped. United States consumes about twelve million pounds of chocolate per annum. Chocolate drinking nations. About when was each of these three drinks introduced into Europe?

35. Sugar.

Kinds: Cane, beet, grape and maple. Cane sugar. Where raised? Climatic conditions required. How planted, cultivated, harvested and method of producing raw sugar from the juice of the cane. Value of the annual product of cane sugar. Molasses. Beet sugar. Where largely produced? Planting, cultivating, and method of producing raw sugar from beets. Value of the annual product of beet sugar. Grape sugar may be produced from nearly all fruits, but the great source for grape sugar is corn. Uses of grape sugar. Important processes in its production. Maple sugar is produced from the sap of the hard maple tree. Maple regions of the United States.

When is the sap taken from the tree and why? Method of producing sugar from it. Amount produced in the United States. Refining cane and beet sugar. Cities of the United States engaged in this. Cities from which the United States imports cane sugar. Beet sugar. Amount of cane sugar produced in the United States. Of beet sugar produced in the United States. Amount of sugar consumed in the United States annually. Per capita used. Which is increasing more rapidly in production, cane or beet sugar? Duty on sugar in the United States about sixty million dollars, or one-fourth of all the duties received by the United States. Is the sugar industry connected with any other industry and how? What nations compete in the production of sugar?

36. Pottery.

All forms of pottery are produced from clay of a finer quality than that used in either brick or tile. Study pottery under three forms. Earthen ware made of a clay that is porous after baking, stone ware that melts in baking and fills the pores, and porcelain, or chinaware, made from finer clay that becomes translucent after baking. Regions for the production of pottery especially in the United States, England, France, Germany and Austria. Important uses? Reasons why only the more expensive kinds will find a market far from the place of manufacture. Cities in above named countries engaged in the production of chinaware. Does the United States export? Imports about nine million dollars worth per annum. Quality of

the pottery imported? From what countries? Before glazing, pottery is known as "biscuit." Process of glazing? Method of decoration on the biscuit and on the glazing? The following kinds of china may easily be obtained from the homes for study: Majolica, Limoges ware, Haviland china, Sevres, Dresden, Munich, Vienna, Wedgewood and Rookwood. Samples should be in hand for observation and study before this topic is commenced.

37. Rice.

Rice the seed of a grass. Rice regions of the United States. Of the rest of the world. Reasons that determine the location of rice culture. Recent methods of rice culture in the United States. Methods used in Eastern countries. How is rice prepared for market?

Japan produces some of the best varieties of rice. Important use of this grade. In what form shipped. What cities of the United States handle rice largely? Do we import? Related to what other industry? What nations compete in rice production? Number of people using rice compared with those who use rye or wheat.

38. Rye.

Regions of the world engaged in raising rye. Climate and soil required. Method of sowing and harvesting. What class of people use rye largely and why? Is this changing? What nations, if any, export rye? Number of people using rye compared with those using wheat for bread.

39. Barley.

This is the hardest of all grains and is grown successfully farther north than any other, hence it is raised, for food, in Northern Russia, Scotland and a few other countries. Its most important use, however, is in making malt for the production of beer. For this purpose it is largely raised in Turkey, Austria, Germany and the United States.

When used as a food it is usually baked in the form of cakes. It has so small an amount of gluten in it that dough made from the flour does not hold the gas formed by the yeast and, consequently will not "rise" as dough made of wheat or rye will do. Sometimes the outside of the kernel is rubbed off in a machine and cooked by itself when the middle of the kernel still uncooked is called pearl barley. United States crop? Russian crop? Compare with the value of wheat, corn, rye.

It is the grain earliest used by man as a food. Grains have been found where the Swiss Lake dwellers lived in the "Stone age" and in Egyptian tombs where it may have been placed more than six thousand years ago.

40. Beer.

What cities of the United States largely engaged in the manufacture of beer? Material used in its manufacture? How fermentation is produced? How stopped? In what form shipped to market? Does the United States export? Import? Connection with what other industries? Beer drinking nations. In what way is this determined by climate? The world's production of beer, five thousand

million gallons. Germany's production, fifteen million gallons. The United Kingdom, twelve hundred million. United States, one thousand million. States of the United States in order of their production of beer: New York, Pennsylvania, Illinois, Ohio and Wisconsin.

41. Wines.

Produced from grapes. Wine producting countries of the world. Reason for the location of this industry. How it is prepared for market. In what packages placed and how harmful changes are prevented in wine. Cities largely engaged in this industry. Value of the wine crop of the world. With what other industry connected and how? The amount consumed per capita in France, in Portugal and in Italy. Connection between wine consumption and climate.

42. Distilled Liquors.

What cities of the United States largely engaged in their manufacture? Materials used. General idea of the processes of distillation. Countries most largely engaged in this industry. Scotland, Ireland, United States and Canada. Value of distilled liquor produced annually in the United States. Revenue derived from distilled liquors and beer annually in the United States. What other nations, if any, derive revenue from a similar source? Effect of alcoholic drinks on the nervous system. On the process of digestion. On the functions of the liver. On the circulation. Regulations of large business concerns with regard to the use of distilled liquor by their workmen.

Suggested Outline for the Study of the Topic of Banking.

1. Differences in the business of the old-time shopkeeper and the importers.
2. Compare dangers to the above classes from robbers.
3. How the business of each class was rendered more secure.
4. Old meaning of bankrupting.
5. Letters of credit.
6. Reasons for all merchants favoring a well executed system of laws. Would the people who bought of the merchants favor good laws? Why?
7. Meaning of bank notes and reason for using them. Harm that might come from it.
8. Reason for having quite strict laws to control the issue of paper money.
9. Paper money is not "real" money. What is?
10. Reasons why all nations use paper money.

43. Banking.

By the time people had learned the real use and necessity of money in carrying on trade, there had developed two classes of men engaged in it, one class occupied small places of business, usually called shops, in which they offered for sale various kinds of wares and another class that traveled to distant places for the purpose of buying such goods, either novel or familiar, as it was thought would find a ready and profitable market at home. Both these classes would require the use of considerable sums of ready money and would invite attack from the lawless classes, or robbers. The shopkeepers could more easily find places of comparative safety, but the traveling importer

would be left quite at the mercy of highwaymen, for this class of merchants was obliged to carry with them money or goods with which to pay for purchases. It was necessary for this class to go to the country where they obtained their goods because they did not know just what they would find at any given place and no systematic way had been yet provided for sending written orders.

These dangers resulted in serious losses to both classes of merchants. The shopkeepers made iron chests and boxes by which to secure their valuables from theft, but even this brought only partial security, after a time goldsmiths and jewelers, who were compelled by their business to have places of great security offered, if properly paid, to let their neighbors share that security; but soon there grew up a distinct class of men in the cities who made it their business, for a consideration, to care for the money and other valuables of those who cared to employ them. For this purpose they constructed especially secure places and had these places of deposit guarded by watchmen. These places have now become heavily walled brick vaults in which are placed massive, double-walled steel safes that not only protect from thieves but from fire as well. These men with whom others left their money for safety became known as bankers, or "benchers," because they had a "counter" or bench on which money or other valuables were placed by their customers to be counted or examined. If a banker did not deal honestly or keep his promises he was forced out of business and the officers of the law broke the banker's bench or counter and thus quite literally bank (or bench) rupted him.

This business (of banking) proved remunerative and soon in all cities of any business pretensions there were a number of bankers. These men were quick to see how they might extend their business and found one ready means in helping the traveling merchants to avoid the danger of loss from robbery. These men had been obliged to carry large sums of money on their journeys and not infrequently lost it all and their lives with it. Bankers offered these merchants the opportunity of depositing money or jewels and receiving in return therefor a letter to a banker in some city which the traveling merchant wished to visit, enabling him to draw the value of his deposit, less the amount paid for the accommodation, in the foreign city. This could be repeated in any city having a bank as often as the safety of business demanded. In this way the merchant would need to carry with him only enough money to pay his traveling expenses. This was a great gain to the merchant and also lessened the temptation to lawlessness. In time, these "letters of credit" became very numerous and are now a necessary part of business transactions, and we hear them called drafts, or bills of exchange.

Bankers, in sending money to their customers in the same town, even, often suffered serious loss from highwaymen and, to avoid this, instead of sending the money, there grew up the practice of sending their notes, payable on demand; this enabled the customers to call at the bank, at any time, and get their money. But, instead of calling for the money, these customers would frequently pass this banker's note on to some other man with whom they were doing business and so it might continue to pass through

several hands before it would reach the bank. This note was much more easily carried and less likely to attract highwaymen than gold or silver and, if the banker who signed it was good, business men preferred it to money. This soon led many bankers to issue their notes in considerable numbers and for different amounts to be used as a substitute for money. This arrangement would be entirely satisfactory so long as the bankers who issued them were both willing and able to pay them; but we can easily surmise that it would not be long before some over-hopeful or some dishonest banker would send out an over-issue and the holders of their notes would suffer. Then it would be necessary for the city or the state or nation to pass laws that should guard the issue of bank notes, or bills, and thus it comes about that such laws exist to-day in every commercial nation of the world, and although these laws have not always shielded the holders of bank notes from serious loss, they have greatly aided and are constantly improving, and the great convenience of "paper money" for general circulation in business will doubtless always keep it in use.

Transportation.

1. Business value of refrigeration in cars and boats.
2. Advantages of having sleeping and dining cars.
3. Travel by stage compared with present methods.
4. How does improved transportation permit each section of the world to do what it is best adapted to?
5. Does this help the laborer? How?
6. In what regions of the world must each community produce all the products it uses? Is this a good thing?

7. Estimate the number of carloads of freight required to load one ocean steamer carrying 20,000 tons.

8. Value of good system of laws in commerce. What people are benefited?

9. Use of ship canals. Locate five.

10. Relation of transportation facilities to general intelligence. Mention nations to illustrate.

Postal System.

1. When were postal cars first used? Who first urged their use? Number of clerks now employed in them?

2. What is gained by their use?

3. The Postal System of the U. S. has never paid expenses. Why should the Government reduce rates of postage, give free delivery in cities and the country?

4. What is the postal Union?

5. What nations have joined it? Why?

6. Money order department, what is it and why established? Amount of money handled annually?

7. Connection between quick mail service and the number of daily papers sold?

8. Amount of business transacted daily in the Post Office of Chicago or other large city?

9. Amount of mail on one large Atlantic steamer.

10. What officer is at the head of this department in U. S.?

Fourth Review.

(Topics 31 to 42, Inclusive.)

1. Two countries that produce ginger. Any other spice produced in same countries? Name three.

2. Distinguish between mace and nutmeg and locate countries that produce them.

3. Show difference and similarities of white pepper, black pepper and cayenne pepper. What cities would export?

4. What nation is the largest user of coffee, of tea, of cocoa? Give pounds of each per capita.

5. Name two cities from which U. S. would get each of the products named in No. 4.

6. What countries compete most sharply for the sugar trade of U. S.? What part of the sugar used does U. S. produce?

7. Will U. S. buy more or less sugar in the future than now? Give reason for your answer.

8. Per capita consumption of sugar in United Kingdom. In U. S. Represent, in some graphic way, the amount consumed by U. S. in a year.

9. Compare conditions that are necessary to raise rye with those for barley.

10. Income in Great Britain and in U. S. from tax on alcoholic drinks. Per capita consumption of wine in France, in Portugal, in Italy. Of beer in Belgium, in United Kingdom, in U. S.

Locative Geography.

(Topics 31 to 42, Inclusive.)

1. Cities from which we might import each of the following: Cloves, cinnamon, nutmegs, allspice, black pepper.

2. Cities from which we import tea. Cities from which we import coffee.

3. Cities from which we import cocoa. Cities in U. S. in which chocolate is manufactured.

4. Cities from which U. S. imports cane sugar. Beet sugar. Three cities in U. S. that refine large amounts of sugar.

5. Three pottery making cities of U. S. Two of England. Two of France. Two of Germany. One of Austria.

6. Three cities of U. S. through which American rice would be handled. Three foreign cities from which rice would be imported to U. S.

7. Four of the largest cities in each of four nations of Europe in which rye is an important food product.

8. Three great cities in each of two European nations where barley is an important food product.

9. The greatest banking city in each of the following nations: England, United States, France, Germany, Russia, Austria-Hungary, Brazil, Argentina, Canada.

10. Compare the foreign cities above named, as to climate, industries and any marked characteristics of the people.

Sixth Grade.

The work of the year covers topics 46 to 70, inclusive, with reviews and formal drills in Locative Geography as indicated.

Review of Meats.

1. What determines that a region shall be used for grazing purposes?
2. Cattle grazing regions of the world.
3. Sheep grazing regions of the world.
4. Cattle feeding regions of the world.
5. Connection between fattening hogs and fattening cattle.
6. Relation of sheep raising to Australia.
7. Regions especially productive of oysters, of salmon, of cod, of herring, of sardines, of mackeral.
8. Relation of meat production and corn production.
9. Relation between meats and cereals.
10. What nations compete most sharply with U. S. in meat production? Will this competition probably change in the future? Why?

Review of Cereals.

1. Compare the values and usefulness of the five most important cereals.
2. What is most important in determining the location of the great wheat producing regions of the world?
3. Is rye preferred to wheat in those regions of the world where it is largely used or chosen for other purposes?

4. What advantages has corn as a human food? Where most largely used now?

5. By-products of corn.

6. A shortage in the Russian wheat crop would offer what markets to American wheat?

7. What, especially, makes the India wheat crop uncertain?

8. Any reason for rice continuing to be the great food crop of China?

9. Any connection between the general intelligence and character of a people and the character of their foods?

10. Coffee drinking nations. Tea drinking nations. Wine drinking nations. Beer drinking nations. Has location anything to do with this?

Review of Textiles.

1. What cities export large amounts of raw silk, raw wool, flax fiber, raw cotton?

2. Cotton manufacturing centers of the world with reason for location.

3. Note in No. 2 where water power has been the determining factor.

4. Nations where the textile fabrics are largely made by hand. Why?

5. Centers for the manufacture of linen.

6. Why flax in U. S. is almost entirely raised for its seed.

7. What kinds of hair will felt and why?

8. Fur-bearing animals.

9. Locate those animals named in No. 8.

10. Where in England and in France is produced the finest wool fabrics?

Review of Structural Materials.

1. Five most important building materials. The most expensive. The most lasting. The most widely distributed.

2. How does the use of ingenious and powerful machines affect building?

3. How does cheap transportation come to affect the price of building material?

4. Important uses of white pine, yellow pine, white oak, spruce, black walnut, hickory, elm, red cedar.

5. Of the materials named in No. 1, which is most used among primitive peoples? Which requires most ingenuity and co-operation for its preparation for use as building material?

6. List the important materials used in a common frame house.

7. Indicate where the different articles named in No. 6 might have been economically bought.

8. List of the kinds of stone shown in the cemetery.

9. Where each kind might have been economically bought.

10. List the materials that enter into the construction of your desk and suggest where each may probably have originally come from.

Review of Fuels.

1. What section of U. S. would feel a shortage of soft coal most? Why? What sections would feel most a shortage of wood? Why?

2. Name ten articles in daily use whose manufacture depends on coal.

3. Show connection between the production of coke and the building of steel frame buildings.

4. Show the connection of fuel and the lighting of cities.

5. In the ordinary events of one day, what products of petroleum do you use?

6. What important nations are in danger of exhausting their fuel supply?

7. Norway buys some pine lumber in Canada. Why?

8. Conditions necessary for large forest growth.

9. Connection between the growth of certain trees and the material and the price of the book you read.

10. Is coal more or less used in manufacturing than formerly? Why?

51. Poultry.

In what parts of the world most raised? Compare the number of eggs produced in the United States, with the number produced in Russia. What nations export eggs? In what way are they shipped? Are refrigerators necessary? What nation most careful in the quality of the product? Consider their uses in the form of food. The use of the yolk in dressing certain kinds of leather, and of the whites in calico printing. Number of eggs produced annually in the United States. Total value of this product. Compare this value with the value of the gold mined in the United States. With the wool product. With the value of other great products.

52. Fish.

Ocean fishing regions of the world. Number of vessels used in this business by the United States. By the United Kingdom. Three important kinds caught along the "Banks." Four kinds found in large quantities in the North Sea. Oyster fisheries in the Chesapeake Bay and artificial beds in Long Island Sound, and also off the south eastern coast of Long Island. Salmon fishing and canning of the Columbia River. Method of preparing fish not canned for the market. Why must fishermen have the use of some land along the coast to carry on their business? Lake fishing of the United States. What regions and value? River fishing regions of the United States. Value of the catch. Methods used in catching salmon. In catching oysters. In what manner are artificial oyster beds prepared? Why? In what way are refrigerator cars or refrigerators in boats connected with this industry?

Seal fishing of the Behring Sea. Methods used in artificial propagation of lake fish. Of river fish. Compare value of the fish caught in the United States with the fish caught by other nations. What nations compete in catching fish? What fish does the United States import and from where? With what other industry is this intimately connected?

Nuts. 53. Domestic. 54. Foreign.

The most important native varities are, walnut, hickory-nut, pecan, butternut, hazel-nut, chestnut and peanut. Foreign varieties, almond, brazil nut, English walnut, cocoanut. Give some special study to the last named,

learning what may be produced from its fiber, the use of oil for butter and the use of the shell and of the milk. Countries where each of the last named group is found. Cities from which each variety may be shipped and to what cities in the United States.

55. Wood Pulp.

Nearly all kinds of vegetable fiber can be reduced to a pulp from which paper can be made. The finest is made from linen rags. A very good grade is made from cotton or a mixture of the two. Strawboard—for boxes—is made largely from wheat straw. Samples of different papers, coarse and fine, can easily be had, also samples of strawboard. Two methods are in use for making wood-pulp; one is by grinding blocks of wood on mill stones and then using the product, and the other by dissolving the pieces of wood chemically. The latter is the more economical and is coming into more general use.

The inner bark of the basswood was found, some time since, to be good paper making material, and this led to experiments with the wood of the same tree and then of other trees not valuable as timber, until now over a million tons of wood-pulp are made annually in the U. S. Spruce fiber is said to make the best pulp, one cord of wood making a ton of pulp, but hemlock, basswood, poplar and other cheap woods are also used.

Since transporting logs is expensive, the pulp mills will be located as near the forests as good power can be found; and also with proper regard for a large market for paper. The power almost universally chosen is water power, since

streams are nearly always plentiful near forest regions and also because large quantities of water are needed in the process of paper making, aside from that used for power. The largest publishing centers of the United States are New York, Boston, Philadelphia and Chicago, and the largest paper mills are at Holyoke, Mass., Ticonderoga, N. Y., Bellows, Falls Vt., Kaukauna, Wis., and some points on the Pacific coast. Each of the above should be located and the source of the power used learned.

Find or make picture of parts of the inside of a paper mill and try to learn only the important parts of the process of making paper. Do not try to go into details. A great part of the paper made is put up in the form of large rolls for shipment.

Represent, in some graphic way, the quantity of paper used annually in some publishing center, as New York or Chicago. As, for example, the number of carloads and the length of the line of cars required for such a supply. Two strips of paper as wide as the largest daily papers, reaching from New York entirely across the United States, would not be enough for one day's supply for the newspapers of New York City alone and, that the presses should not run out of stock, these strips of paper would need to come to the city more rapidly than an express train moves.

In considering the uses of paper we must not stop with writing paper, book paper and that for newspapers but consider all forms of building paper, wall paper, and that used in the making of flower pots, tubs, pails, canoes, horse shoes and car wheels; also remember that all vessels that

are to come into contact with water must be treated with paraffine.

It will certainly be both interesting and profitable to trace the connection of this industry with that of lumber generally, with the manufacture of spruce butter tubs, with wooden ware mills in the making of pails and tubs, with the shipping of eggs, strawboard being used to make the "fillers" in which the eggs are placed inside the shipping boxes, with the building trades, furnishing heavy paper for flat roofs and, also, that to be placed between the inside and outside boarding of houses, to say nothing of the large amount required in making all forms of paper boxes.

The expense of all the early forms of paper was very considerable, and only for the discovery of a process by which to make it much cheaper the invention of printing would have been of little real service to the world. It is a matter of some interest that during the Civil War in the United States, linen or cotton rags could not be had in sufficient quantities to enable the paper mills to furnish the supply needed by the newspapers of the country and it was found that various kinds of straw would make a paper that would do, although unsatisfactory; and this began a series of experiments resulting, finally, in learning how to make paper of nearly all kinds from wood pulp.

SUGGESTED OUTLINE FOR THE STUDY OF COMMERCIAL PAPER.

1. How business would be done in a small city without any aid from banks.
2. Ways in which business men get money from banks to run their business.
3. Distinguish between banks of deposit and banks of issue.

4. Banks that are national.
5. The three classes of banks most common in U. S.
6. The way the ordinary business man pays his bills.
7. Checks. Drafts. Bills of Exchange.
8. Reason for using commercial paper instead of money in most business transactions.
9. Amount of business done in representative city banks. (See their sworn statements in the daily papers.)
10. How a man living in some small town, as Dixon, Ills., would be likely to pay a debt he owed to another man in his own town, to a man in Chicago, to a man in Boston, to a man in London.

56. Commercial Paper.

In an earlier part of this book it has been shown that money is a business necessity and that a system of banking is not only a convenience but a necessity to an extended business.

This discussion is to further show that banks are an absolute business necessity and also that without a well defined system of commercial paper, or some equivalent, which would not be possible without a well organized system of banking, the present volume of business would be impossible.

In a town of even three thousand inhabitants, entirely deprived of banking facilities, either at home or elsewhere, it would be very difficult to carry on its ordinary local transactions. Every business man must provide for the safekeeping of all moneys coming in or required to conduct his business, he must himself take or send by mail, or express, the money for the payment of all bills, he must receive all payments in "hard" money, for bills are the creation of banks, in case of failure of money to come in

as he had a right to expect, or if an unusual demand for money should find him unprepared to meet it, as so many times is the case, we would have to supply his need from private source or see himself financially wrecked. Not one-tenth of the concerns now doing business, even in a very conservative way, could continue for five years without the aid of banks.

Nearly all banks invite the general public to deposit money with them for safekeeping; some, in addition to this, under the restrictions of law, issue a certain amount of bills payable on demand in gold or silver, or the equivalent at the bank of issue. The latter are sometimes called banks of issue. Some banks are truly national and control all the moneys of the government by which they are established. Such is the Bank of England in London, the Bank of France in Paris; in a modified way this is true of the Bank of Scotland. In the United States are private banks, state banks and national banks. All are subject to certain laws for inspection but none in any way represent the government.

The money deposited in any bank may be as a special deposit or on general account. In the former case, the one who made the deposit can draw it at any time, it being placed in the bank as a mere matter of safety, and, usually, for but a short time; in the latter case, the deposit is not only made for safety but that the depositor may draw orders on the bank for such sums and at such times as his business requires, up to the amount of his deposit. These orders of a customer on the bank are called checks, or cheques. It is very common for business men to deposit

all money or checks received each day with the bank and to pay most of his local bills by checks on his local bank, but to pay bills at a distance by getting from his bank its order on some other bank near the place where his creditor lives and sending this order, called a draft, to the person that is to be paid. The business man pays for this draft by giving his check on the local bank where he does his business for the amount of the draft and about fifteen cents added to pay for the trouble of drawing the draft. Many banks do not charge their customers anything for this trouble. If the creditor lives in a foreign country, as England, for instance, the bank can procure for their customer the order of some bank of United States on some convenient bank in England for the proper amount and then he can mail this bill of exchange to the man he wishes to pay in England. For this bill of exchange he pays his bank by check. Even manufacturing concerns often pay their workmen by checks. Thus it is seen that the ordinary man of business uses very little actual money. The different forms of commercial paper are both cheaper and safer. Banks have occasion to send money to other banks and get money from other banks as they may need, while over nine-tenths of all the business transactions of the world do not use any actual money; yet all this is made possible only because the real cash is known to be in the bank vaults where it can be had if needed. It certainly must be clear that a well considered method of banking without which the system of commercial paper, as now exists, would be impossible, is a necessity of modern business.

That children comprehend and are deeply interested in this, repeated trial has proven.

57. The Coarser Fibers.

The coarser fibers used in rough fabrics, and in the production of rope and baskets largely are, hemp, jute, sisal, ramie, and raphia. Have samples or pictures representing each plant and determine the most common use of each kind of fiber. Regions where each is produced.

58. Caoutchouc.

What it is. Where found. How obtained. Character of the tree. Color of the raw product with reason for same. Form in which it is imported into the United States, and from what cities imported. Value of the raw material imported. Important uses. Cities of the United States engaged in the manufacture of rubber goods. Value of the world's annual crop of caoutchouc. Forty per cent of this is consumed in the United States. Nations next to the United States in the manufacture of rubber goods. The manufacture of rubber goods connected with what other industry and how? Rapidity of increase in the use of rubber goods. History of the invention of vulcanized rubber. For which see Biography of Charles Goodyear.

59. Gutta-Percha.

What it is. Compare this with rubber. Where obtained. Uses. Noting especially its use in the construction of ocean cables.

60. Leather.

Leather is produced by tanning the skins of various animals, especially of cattle, sheep, goats, horses and hogs. These skins are tanned either by the use of certain barks or by a chemical process. Kinds of bark. What will determine the location of tanneries using the former process? The location of tanneries using the latter? What are the tanning centers of the United States? The process of tanning common leather. Important uses of leather. The greatest leather market of the United States and why? Is this likely to change? From what countries does the United States import hides?

The process of boot and shoe making in the factories. Compare with the production of boots and shoes by hand labor. Compare the expense of producing boots and shoes in the United States with that of England, Germany. Cause of the difference. Do we import boots and shoes? Other leather goods? From what nations? What kinds of leather goods? To what nations do we export boots and shoes? Value of the annual product of boots and shoes in the United States. With what other industry is the leather industry connected and how?

Fifth Review.

(Topics 46 to 60, Inclusive.)

1. What country raises hens quite largely? Ducks? Geese? Value of eggs laid annually in U. S. Compare with the value of sugar consumed. Length of railroad it would build at $40,000 per mile.

2. How does the poultry product compare in value with the fish catch of U. S.? If all U. S. fishing should fail for a year what cities would feel it most?

3. If no one had yet invented a method of making paper from wood pulp, what very practical difference would we all realize in our homes?

4. How does the annual output of all the paper mills in U. S. compare with output of hard coal, of gold? Show why a large paper mill should be built at Ticonderoga, N. Y.

5. What are the important fibers used to make rope? What becomes of old rope? What fiber is used to make gunny sacking?

6. What is the most important use of gutta percha? Where is it found? Give the termini of one Atlantic cable. One Pacific cable.

7. Explain how it can be that U. S. buys hides of Argentina and after bringing them to New England, tanning them, and making the leather into shoes it is able to sell the shoes in the city that furnished the hides.

8. Locate the shoe manufacturing cities of U. S.

9. Where are the great seal fishing regions of the world? For what purpose are seals caught?

10. Why do business men use checks instead of money? Why could they not get along without money altogether?

Locative Geography.

(Topics 46 to 60, Inclusive.)

1. Great cities connected with the meat industry of U. S.

2. Cities of U. S. that grind large quantities of wheat. Cities of the world that ship wheat.

3. Two cities that ship raw rubber. Two cities of U. S. that manufacture rubber goods. A city from which gutta percha could be had.

4. Cities of U. S. that export raw cotton. Three cities of New England that manufacture cotton goods.

5. Three cotton manufacturing cities of each of the following nations: England, France, Germany, Russia.

6. Cities that ship silk cocoons. Cities of the world that manufacture silk goods.

7. To the nations named in No. 5 add U. S. and name the cities engaged in the manufacture of wool goods.

8. Five cities of U. S. manufacturing paper.

9. Five cities of U. S. from which fish is shipped in large quantities.

10. The city producing the largest amount of fine leather goods. A city from which U. S. imports a large number of hides. The shoe manufacturing cities of U. S.

61. Tile.

Use and value of drain tile. Use of terra cotta. Of fire brick. (For uses of fine clay see pottery.)

62. Copper.

Copper is an ore found mixed with rock in Montana, and Michigan, and as an oxide in Arizona. Method of preparation for market. Important uses. Cities connected with the mining of copper in the United States. Cities connected with the refining of copper in the United States. One other nation besides the United States producing copper largely. World's production of copper about four hundred eighty thousand tons, of which the United States produces sixty per cent. Value of copper exported by the United States, sixty million dollars. About two-thirds of which is refined copper. United States imports about fifteen million dollars worth of ore. Why? Of what is brass and bronze each made and to what important uses put?

63. Zinc.

Mining regions of the United States. In the treatment of the ore, the most important process is that of roasting, by which the impurities are driven off; the most important of these is sulphur, which is collected and manufactured into sulphuric acid, used in a large number of other manufactories. Zinc is also used in the manufacture of a kind of paint, in the manufacture of galvanic batteries, and to galvanize iron. Will the refining work be at the zinc mines? If not, what will determine their location? Value of the annual product in the United States. Cities of the United States connected with the mining or the refining of zinc.

64. Lead.

Important mining regions of the world. Production about eight hundred thousand tons annually, one-fourth being from the United States. About same amount mined in Spain. Important uses. Production of paint of which the United States produces annually about ten million dollars worth. Water pipes and tanks, mixed in proper proportion with tin to produce pewter, and solder. Mixed with antimony to produce type metal. With arsenic to produce shot and bullets. With what other industry is lead production connected? How?

65. Plumbago.

Where found? Compare with lead. Method of preparation for use. Note three uses: For lead pencils, for stove blacking, and as a lubricant for machinery. How produced in the United States?

66. Tin.

Tin mines of the world. How is tin mined and prepared for the market? Most noted tin mine of the world. Regions producing the largest amount of tin. In what cities of the United States are tin plate mills? What is tin plate? Most important use of tin. The United States imports about twenty million dollars worth of tin bars. Will this change? How? What nations compete in the production of tin?

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67. Nickel.

Nickel mines. Uses of nickel: German silver for coins, nickel steel for armor-plate, and for shafts and other parts of machinery requiring unusual strength.

68. Aluminum.

This metal up to a few years since was as valuable as gold, but quite recently methods have been discovered by which it may be obtained in large quantities at small expense from clay, and may now be bought at thirty cents per pound. It is one of the best conductors of electricity, and is one of the lightest of metals. How may this affect the copper industry? Aluminum bronze.

96. Tobacco.

Tobacco: regions where produced. Character of climate required. What peculiarity of climate required for the production of the best leaf for wrapping cigars? Method of planting, cultivating and harvesting. How stored. In what form shipped. From what cities of the United States exported. To what cities. From what cities does the United States import? Why the United States both exports and imports tobacco. Value of the United States' crop. Of the world's crop. What nations compete in the production of tobacco. Uses for the coarse parts of the leaf. Method of preparing "plug" tobacco, snuff, and cigarettes. Consumption per capita in Holland, United States and Turkey. Amount of revenue derived from tobacco tax in the United States. Effect of tobacco on

the nervous system. On the action of the heart. Use of cigarettes. Regulations of large business concerns in regard to the use of cigarettes.

70. Opium.

What it is. Have drawings or pictures to illustrate. Regions engaged in its production. How prepared for the market and in what form shipped. Use in medicines. City furnishing this largely to the United States. For smoking purposes largely furnished by what nation. A government monoply in India. What is the purpose of this? Cities connected with opium trade. Way in which this trade was forced into China. Its influence in China. Value of the annual opium production. Effect of using opium upon the system.

Sixth Review.

(Topics 61 to 70, Inclusive.)

1. How is drain tile laid and what does it do for the land? Would glazed tile answer the same purpose? Is the proper kind of clay for tile found in few or many places?

2. Any reason why brick or tile will be used near the place of manufacture? What? Hollow brick and their use. How is the use of hollow brick connected with the use of steel in the erection of fire proof buildings and high buildings?

3. Why should copper mined in Spain be shipped elsewhere to be refined? Three regions of U. S., naming a city in each, producing rich, copper ore. Is the use of copper likely to increase? Reason?

4. Uses of brass and bronze. Difference in composition.

5. If storage batteries should be used to run street cars and the trolley system abandoned, how would that affect the demand for copper and for zinc?

6. What impurity is found in large quantities in most zinc ore? How is it utilized? Where may we find large supplies of nearly pure sulphur?

7. How is lead connected with the painting of a frame house? How connected with the flax industry? How is the lead in your pencil related to the blacking on the stove? From what places in the U. S. might the material for both uses have come?

8. What is the greatest use of tin? What can you learn about tin mines of Cornwall?

9. From what is aluminum obtained? Its price now compared with its price a few years ago. Why the change? If it becomes cheap enough, which one of the metals above named may it in part displace?

10. Tobacco producing states. Foreign countries. Name four nations using large amounts of tobacco. Per capita used in each. Value of the crop in U. S. compared with wheat, with wool.

Locative Geography.

(Topics 61 to 70, Inclusive.)

1. Three cities of the world connected with the production of tin. Two cities of U. S. that manufacture tinplate.

2. Cities of the world that refine copper.
3. Three places that mine nickel.
4. Cities of U. S. smelting zinc.
5. Cities of U. S. smelting lead.
6. Cities of U. S. in which would be found large tobacco warehouses.
7. Three foreign cities from which we import tobacco.
8. Cities of U. S. in which tobacco is largely manufactured.
9. Three foreign cities from which opium would be largely exported.
10. Compare above cities as to size, as to climate and as to industries.

Seventh Grade.

The work of the year covers topics 71 to 110, inclusive. No especial reviews or drills are put down in the work of this year, first, because the teacher certainly will use such as she sees are helpful, but, more especially, because the entire effort for the year's study is to present all that has been previously studied from a different point of view, believing that thus the teacher may successfully use the increased knowledge and greater maturity of the children for the purpose of leaving the subject in something like a systematic and organized form in the learner's mind.

Outline of Local Government.

1. Source of power.
2. Expressed through caucus and then at election.
3. In a country town (not village) the chief officer and his duties.

4. Officers that levy town taxes, and make proper record of the same.

5. Duties of Assessor. Duties of Collector.

6. Commissioners of Highways.

7. Justices of the Peace and Constables.

8. Of a small city, Mayor. Police Department. Health Department.

9. Courts and attorney.

10. Law making department. City Council.

Study of a Large City.

The study of a great city, as Chicago, with an estimated population of two millions.

The number of people upon a given area, as of one acre, is a matter of a good deal of interest and becomes very real to one who compares such a population to that which would be found on equal area in a rural region or in a village. The density of population provokes serious and interested inquiry as to why people should be willing to place themselves in such situations, how they can be housed, fed, and by what means they can gain even the necessities of life. Even children are interested to understand what industrial or social forces can bring them together, or by any possibility, properly care for them. With this in mind, the study of a city becomes very real and profitable.

It would be impossible to consider all the varieties of building used to house the people of a city, but a few of the representative kinds may be studied with great advantage. The cheap shanty of the squatter on railroad land we have all seen many times and can easily describe both

the building and its surroundings; with a little more effort one may be able to see the poverty of the inside furnishings, the sanitary conditions, the kind of real life that exists and wonder what the intellectual and moral influence of such surrounding will be upon children who know nothing better. Another representative form is the tenement house, found in the more densly populated parts of the city, where, not infrequently, more than five hundred people are housed in one building, and that building fronting upon an alley, a family of six people sometimes living in one small room, where, not even the decencies of life can be respected. The city flat, occupied by a class of people having a better and more assured income, may be taken as the representative home of the great middle class of artisans and workmen, and its method of heating, lighting and sanitation should be compared with the methods already familiar, used in the country and in villages. Next consider the great apartment house, occupied by the rich, and supplied with all the conveniences and luxuries that can be furnished by the highest ingenuity and greatest wealth of the present day. Magazine articles appear, not infrequently, on this theme and will be read with great interest by the children. Aside from these, there should be noticed the fine residences on the best streets of the city and the contrast of life between these and some of the forms first mentioned should be intelligently and sympathetically studied.

The feeding of a great city should bring into imaginary, or real, view the miles of truck gardeners that enter the city before daylight with the products of their gardens, and form familiar groups in certain parts of the city during

the greater part of the forenoon of each work day. The markets that supply the fresh meat, fruits, both local and tropical, the acres of platforms each morning filled with milk cans to supply the milk and cream should be brought into our view in considering this theme. In order that children may realize, to any extent, the quantities of any one of the classes of food mentioned, special calculations should be made by them; as, for example, the number of loads of fresh meat of two tons each that would be required for the estimated population, and see these wagons, in imagination, in line on one street and learn how long a line of wagons would be required for one day's supply; or, suppose each person to require one-half pint of milk daily, how many eight gallon cans would supply them, how many cars these cans would load, how many train loads these cars would form. In thinking of fruits, the children should learn something of the number of special train loads or boat loads it would require for a week's supply, the special forms of car or other conveyance that had to be invented before fruits from a distance could be placed where they could be cheaply accessible. The butter supply for a month or for a year, the cheese supply for the same time can be easily estimated in some graphic way, the work done in the bakery, by the confectioner shops, in the restaurants, and the way in which the broken food is distributed to the poor from many restaurants and hotels late at night should be considered.

Most great cities obtain their water supply from sources at a distance of several miles, the water being conveyed to the cities through great conduits, constructed of masonry,

from which it either flows into or is pumped into reservoirs or stand-pipes from which water pipes of various sizes convey it through the city. In Chicago, the large source of supply is from the lake, the place from which the supply is drawn, in each case, is called a Crib. The first one built is about a mile from the mouth of the Chicago River and the way in which the work was done in constructing the tunnel should not be left unnoticed. Work was commenced at each end at the same time. A dam was built at the Crib to exclude the water so as to permit a shaft to be sunk, to the depth desired, when the horizontal excavation began, directed by the engineer, so that the two gangs of workmen should exactly meet. It is a matter of a good deal of interest that when the meeting occurred the variation between the two gangs of workmen amounted to but very few inches. The second Crib is built about three miles out from the shore line, its method of construction being similiar to that of the first. The children should ascertain why the second Crib, at large additional expense, was built so far out into the lake and what effect the opening of the Drainage Canal has upon the water supply of the city. Some idea of the power required at the pumping stations will prove useful and, also, it should be known that, in case of a great fire, or other unusual demand for water, the force of all the pumps used may be turned directly upon the water pipes of the city thus forcing a stream from a hose much higher and much more swiftly than can be done by pressure from the reservoir. The use of this with very high buildings should not be omitted.

Until recent years the best lighting afforded for cities

was that from gas, manufactured by the city; this is now greatly aided by electric lighting, still the construction of gas works is a matter of a good deal of importance and interest. If the work cannot be visited, pictures can be easily obtained by which to gain an idea of the way in which gas is forced from the coal in the coke ovens and stored, under considerable pressure, in large tanks from which it is piped to all parts of the city, while the coke that remains is used as fuel. The contrast between lighting cities as is now done and that used a hundred years ago when each householder was required to hang a tin lantern in front of his premises, is so marked that it will not fail to interest. The effect of better lighting of cities upon the commission of crime might also be noted.

The fact that so large a number of people can support themselves in so small a place is good evidence of the existence of great industries, a few of the greatest of which should be considered. The packing interest of Chicago requires for its business about one square mile of land and employs nearly fifty thousand people and probably supports three or four times that number. The method of construction of the yards, the facilities for unloading, slaughtering and caring for about one hundred fifty thousand animals in ten hours certainly is worthy of study. To this we should add the railroad depots, railroad yards and terminal facilities, the lumbering interest, the grain elevators, the department stores, the wholesale grocers, the teaming, and, as a foundation for all, the system of banks upon which all this business activity must finally rest. A contrast, rather startling, between the financial

situation now and a little over a hundred years ago is shown by the fact that one Chicago bank, alone, has on deposit, for its customers, a daily balance that would more than have paid the debt of the revolutionary war that threatened to overthrow the nation in the days of Alexander Hamilton.

Some attention should be given to the study of street and boulevard construction, street car lines, both surface and elevated, its harbor facilities, lighthouses, buoys and long line of river dockage.

Nearly all the business interests of a great city are now controlled by men who occupy its down town offices. One such office building has a population sufficient to make a small city and controls a line of business that would occupy a large one. The Monadnock or the Stock Exchange Building might be taken as a representative of this class.

But a great city is not all above ground. Some of the greatest necessities and utilities are its miles of sewers, its watermains, its pneumatic tubes, its gas pipes, its tunnels for quick passenger transportation and for telephone wires.

The theaters, concert halls, museums, art galleries, lecture halls, gymnasiums, bowling alleys are some of the places where the people of a city find amusement and recreation. Its great park system, connected by boulevards, should also be remembered and some of its special social functions might well be compared with the simple society affairs in a country or village.

Its method of government should be seriously studied and its departments and officials compared with those of the state or the local municipality. It has its executive

department, at the head of which is a Mayor, having the power to appoint and largely control a police department, a fire department, a department of health, a street department and inspector of buildings; its legislative department is especially represented by a board of aldermen over whose official acts the Mayor has a veto power; the judicial department is represented by its justices of the peace and higher courts with proper executive officers and a jail; its financial department consist sof assessors, collectors, and treasurer, while the board of education, appointed by the Mayor, has charge of its public schools. The system by which a city cares for its garbage is one of interest and one also on which information is quite readily obtainable.

Suggested Outline for the Study of Physical Geography.

1. Locate the great mountain systems in each of the grand divisions of the earth.
2. Locate for January the Northeast trade winds, the Southeast trade winds, the three great belts of calms, the two belts of Westerly winds, the Arctic and Antarctic winds.
3. Locate each of the following ocean currents for December: Atlantic Equatorial, Gulf Stream, Brazil Current, Pacific Equatorial, Japan Current, Labrador Current, Siberian Current, Chilian Current.
4. Locate the same for July.
5. Draw the winter isotherm of 60° in the Northern hemisphere and account for all the great bends in it.
6. Draw the summer isotherm of 60° in the Northern Hemisphere and account for the great bends in it. Note where these lines are nearest and where farthest apart. Give reason.
7. Find the isotherm of 80° in the Pacific Ocean.
8. Account for the heavy rainfall of the Amazon and Congo valleys.
9. Account for the following desert regions: Sahara, Persia, Gobi, Interior of Australia, Utah.
10. Source of rainfall in Mississippi valley. On Atlantic slope.

11. Cause for difference of climate of Southern and Northern California.

12. Note the latitude of Montreal and of Venice and account for the difference of climate.

13. Suppose the Rocky Mountain system obliterated, how would it affect the climate of North America? Would it help U. S. if a mountain range extended along its Northern boundary?

14. Suppose the main mountain chain of Europe extended north and south through France and Great Britain. Change of climate it would cause.

15. Suppose the Alps extended north from the Adriatic Sea to the Baltic. What changes in climate of Europe east of that line? West of that line?

16. The wheat crop of Russia sometimes fails for lack of rain. Account for this.

17. Account for the frequent failure of the India wheat crop.

18. Why is the Orinoco valley arid during a part of the year and drenched with rain at other times?

19. Where do most of the great commercial rivers of Europe rise? Account for this.

20. Why has Spain less rainfall than France?

21. Why do steamers going from New York to Liverpool run farther north than on their return trip?

22. How is a vast amount of the vapor and heat of the equatorial regions transported to the temperate regions? Good of this?

23. Effect of large lakes and inland seas upon climate? Which shore of Lake Michigan is most affected? Of Black Sea? Of Mediterranean? Gulf of Mexico?

24. How do rivers determine the location of cities?

25. Select a river that has a delta at its mouth and another that has an estuary. Compare them as to their commercial value.

26. If a wind current is moving toward a place of higher temperature will it deposit its moisture? If the reverse, what?

27. Apply the knowledge gained in No. 6 in at least five different regions of the world.

28. Explain the formation of rain, hail, snow, dew, frost.

29. Annual rainfall in Mississippi valley, in Mexico, in Northern India, in England, in Po valley.

30. Explain land and sea breezes.

73. Physical Geography.

By means of relief maps, study the profile of the country, mountains, plains and river valleys and the general slope. Winds,—locate, on the map, trade winds, equatorial calms, calms of tropics, region of prevailing westerly winds.

Ocean currents,—locate, especially, the Gulf Stream, the Japan Current, Equatorial Currents, Arctic and Antarctic currents. Effect of all high lands upon the prevailing winds as to direction, moisture and temperature.

From each of the ocean currents above named, trace the effects produced by the prevailing winds. After noting the effects of high lands upon moisture distribution, determine what changes would be produced if, for example, the Rocky mountain system ran east and west across North America, if the Scandinavian mountain system was obliterated, if the general trend of the Alps was from north to south across Europe, if the great Asiatic mountain system ran from Southern India north across Asia. Note the cause for the unproductive condition of the Great Basin of North America, the source of rainfall in Western Europe north of the Alps, south of the Alps. Learn the source of the rainfall of the Mississippi valley, the Atlantic slope, the Amazon valley. Children will easily arrive at correct answers in the above cases by an intelligent study of land elevations, wind and ocean currents. It is entirely useless to learn of location and strength of physical causes without attaching to them their industrial and economic results. With this thought in mind, study each of the great pro-

ductive valleys of the world and also the desert regions of the world.

Note that the location of the great salt water fish supply of the world is in the cold ocean currents. Use of ocean currents in commerce, of wind currents in commerce. Call attention to this when tracing the shipment of any product to its market, and see how this would affect the direction taken by a vessel or the time required.

Vast evaporation in the tropical regions cools those regions by the amount of latent heat taken up and concealed in its vapor. This heat and moisture are transported towards either pole, where both are set free. Effect of this upon both the tropical and the temperate regions. Water surfaces are heated and cooled more slowly than land surfaces, hence the sea breezes, also the high temperature of land-locked seas such as the Mediterranean and Caribbean. Select land surfaces and water surfaces that illustrate the greater extremes of heat and cold felt on the former than on the latter.

Lakes,—their service in commerce, in fish production, as sources of moisture and as furnishing a modification of temperature. By study of prevailing winds over such bodies of water, determine which shore of a lake will be most effected in climate.

Rivers,—uses: Erosion, transportation of the results of erosion to valleys, and in lumbering, commerce on lower course, use and location of falls. Why cities frequently grow up at the mouth and at a fall in a river.

Atmosphere,—uses: To support animal life, to support combustion, to support and transport vapor, to prevent

too rapid radiation of heat from the earth, to produce twilight, to diffuse light. Method by which the sun heats the atmosphere, conditions of the atmosphere that increase or decrease radiation. Dew, frost. Practical results. Effect of elevation on temperature. Reason for this. Rain, hail, snow. Brief study of the races of men.

Study of World Belts.

Belt of 10° N. to 10° S. Around the World.

1. On outline map of the world trace the boundary lines of this belt. Name important countries of South America, of Africa, of East India Islands. Fill places on map as needed.

2. Prevailing winds in America, in Africa, in East Indies. Account for these winds. Which of the three sections has the most desirable climate? Why?

3. Compare, as to products and inhabitants and commercial use, the Amazon Valley and the Kongo Valley.

4. North and south of the forest regions found in answering No. 3 are treeless plains. Locate them, learn their names and the reason for such plains.

5. Why is the climate of the islands in this belt so different from that of America and Africa in the same belt?

6. What are the important products of the islands in this belt? Three cities.

7. Account for great differences in the climate of the eastern and western coast of South America in this belt. Name two cities on or near each coast.

8. What commercial products found on the Kongo

River? What promise does this valley give for future development? Locate a city on each coast of Africa.

9. How is the Nile River dependent on what happens in this belt?

10. Are the large islands of the East Indies mountainous or level? What difference would this make?

Belt 10° N. to 30° N. Around the World.

1. On outline map of the world, trace the boundary lines of this belt. Name important countries included in America, in Africa, in Asia. Fill in all places called for below when needed.

2. Prevailing wind in America, in Africa, in Western Asia (summer winds and winter winds separately), Eastern Asia (summer and winter separately). Account for these winds.

3. Note the location of the high lands in relation to the prevailing winds and then tell about the rainfall in the different sections of this belt. (Three greatest desert regions and three regions of heavy rainfall).

4. Locate cities of two hundred thousand or more; in America two, in Africa none, in Western Asia none, in British India eight, East of India five. Reason for such a grouping of cities.

5. Character of the people compared with people of U. S.

6. Compare temperatature of different sections with that of City of Mexico or Manila. Account for contrasts.

7. What are important industries of the different sections?

8. What important nations are interested in the belt? Where is greatest progress now indicated?

9. What part of this section was in the Indies sought by Columbus? Would it be thought worth the effort now?

10. About what part of the population of the earth is in this belt and in what part of the belt? Is this belt a good one to live in? Reason. What races of men in this belt?

Belt of 30° N. to 38° N. Around the World.

1. On outline map of the world trace the boundary lines of this belt. Name important countries in America, Europe, Africa, Western Asia, Eastern Asia. Fill in places called for below as needed.

2. Prevailing wind in America, in Europe, in Africa, in Western Asia, in summer, in winter, in Eastern Asia in summer, in winter. Account for these winds.

3. Note the location of the highlands in relation to the prevailing winds and then account for the rainfall in the different sections of this belt.

4. What seven important cities of the U. S. very near the north boundary line of this section? What cities about as large as St. Louis south of that line in America?

5. Cities of two hundred thousand or more in this belt; in Africa two, in Europe four, Western Asia two, Eastern Asia nine (include Tiensin and Pekin and cities of Japan and Korea).

6. Note the desert and semi-arid regions of this belt, locate the N. E. trade wind and then account for the lack

of rainfall in the different sections. Why the cities in Eastern Asia?

7. Give the great products of this belt. In the fertile regions, is it easy or difficult to raise these products? Is this good or bad for the people? Races found in this belt?

8. The great crops of U. S. grown in this belt. In what part is each produced?

9. About what part of the area of U. S. in this belt? What part of the population? Account for this.

10. Are the products you discovered in answering No. 8 largely manufactured in this region? Reason. Are the people of the section in U. S. in any way similar to the people in Eastern Asia? Reason for your answer.

Belt of 38° N. to 46° N. Around the World.

1. On outline map of the world trace the boundary lines of this belt. Name important cities in America, Europe, Asia. Fill places called for as needed.

2. Prevailing wind in America, in Europe, in Siberia in winter, in summer. Account for these winds. Note, especially, the effect of the summer sun north of theMediterranean Sea and of the Black Sea on the small area north and east of it.

3. Note the location of the highlands in relation to the prevailing winds and then account for the rainfall in the different sections of this belt.

4. Contrast the productiveness of Northern Spain with France. Compare, in climate, Northern Italy with Southern Germany, Roumania, Southwestern Siberia, the

southern part of the Province of Quebec, with Minnesota, Western Oregon. Account for all answers.

5. Cities of two hundred thousand or more in this belt in America, fifteen, in Europe twelve, Asia, two. Will this relation change in future?

6. Important products of this belt in America, in Western Europe, in Eastern Europe, in Western Siberia, in Eastern Siberia, in China.

7. Compare these products in each section with the products in corresponding sections of the belt immediately south of it. Compare this belt in America with the same belt in Western Europe, in Eastern Europe.

8. Compare the efficiency of the laboring classes in the sections named in No. 7. Reason for differences.

9. Compare the amount of manufacturing carried on in the sections named in No. 7.

10. Name cities of one million or more in this belt, in America, three, in Europe, one, in Asia, two.

Belt North of 46° N.

1. Name important countries in this belt in America, in Europe, (eleven) in Asia. Locate places on outline map of the world as needed.

2. Prevailing winds in winter and in summer in Southeastern Canada, in Southwestern Canada east of the Rocky Mountains, in British Columbia, in Alaska.

3. Locate the forest regions in America, in Siberia. Note the semi-arid region south of the forests of Siberia and explain why no such belt exists in America. (Great Lakes and Gulf of Mexico.)

4. Why is the influence of the Atlantic Ocean not large on the climate of Siberia. What prevents the Pacific. Ocean from modifying the climate of most of Canada? Influence of Hudson Bay on Canada. Which has greater promise for the future, Canada or Siberia?

5. Locate the great river valleys in this belt. Compare as to both area and usefulness, these rivers with those in the belt south of this. Reasons for your conclusions.

6. Contrast the climate of North America in this belt with that of Europe. Account for differences. What section of North America has a climate similar to this belt of Europe south of 60° N.?

7. Cities of two hundred thousand or more in this belt in America, in Asia, in Europe (about fifty), England 12, France 2, Belgium 2, Netherlands 3, Germany 12, Austria-Hungary 3, Turkey 2, Denmark 1, Norway 1 Sweden 1, Russia 6.

8. Six of the cities named in No. 7 have one million or more. Which are they? What part of any of the belts studied is most like the European section of this belt?

9. In the European section of this belt, excluding Norway, Sweden and Russia, there are about one million square miles and a population of two hundred million people. Compare with Texas, with California, with Brazil, with south half of China as to value commercially, educationally, religiously.

10. Which of the belts so far studied is most valuable to the world and why?

Belt 10° S. to 35° S. Around the World.

1. On outline map of the world, trace the boundary lines of this belt. Name important countries of South America in this belt, of Africa, of Australia. Fill places on map as needed.

2. Prevailing winds in northern part of this belt in South America, in southern part, in Africa in July, in December, in Australia in July, in December. Note the position of the highlands in each country and say how this will effect rainfall.

3. Important agricultural products of the sections named in No. 2. Important mineral products. Compare Africa and Australia in this last class of products.

4. What common characteristic is found in the three countries named that all should be used largely in raising both cattle and sheep? Does this recommend the fertility of these sections?

5. Largest city in this belt in Africa; what has caused the rapid growth? Two other cities of Africa in this belt.

6. Cities of two hundred thousand or more in South America, four, in Australia, two. Compare this belt as to cities and commerce with the belt of 10° N. to 30° N., with the belt of 30° N. to 38° N.

7. Conclusions as to productiveness, as to character of the people of the belts compared in No. 6.

8. What of value is south of this belt? In the northern hemisphere, in what belts did we find more of the active and progressive nations? To what race do they belong?

9. Do we find any sharp contrasts of climate in this

belt as was found in the belt of 38° N. to 46° N. or the belt north of 46° N.? Why not?

10. Beside latitude, what two things help most powerfully to determine climate? Which has the greatest influence in determining the productive value of a nation, climate and natural resources or the characteristics of the people?

Sections for Special Study, Using for Each the Following Form:

Study of Special Large Sections.

1. General location and surroundings, comparative area and population. Contour.
2. Position of high and low lands with relation to direction of prevailing winds and position of large bodies of water.
3. From a study of No. 2, determine amount of rainfall and extremes of heat and cold.
4. From a study of No. 3, for what purpose is the land best adapted?
5. From a study of No. 2 and No. 3, consider number and size of rivers, their falls, or rapids, the rapidity of the flow, and whether their mouths are deep and wide (estuary-like), or shallow and muddy (delta-like). (Be certain to see the practical value of each of the matters here determined).
6. Great mineral products, especially iron and coal, their location with reference to each other, and to some convenient *means of transportation.*
7. Considering Nos. 4, 5, and 6, what are the possible great industries and their location?
8. Great imports and exports with *reason* and cities especially so engaged.
9. Cities built up by great industries, learning what in each case. Those established by being on some great trade route.
10. Character of the people as to education, religion, similarity or dissimilarity and government. Capitol city or chief city.

SECTIONS FOR SPECIAL STUDY.

80. New England.

81. Middle Atlantic States: New York, New Jersey, Maryland, Delaware, Pennsylvania, West Virginia, Virginia.

82. Southern States: North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Indian Territory, Oklahoma, Tennessee, Kentucky, Missouri.

83. Central States: Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, Kansas, Nebraska, South Dakota, North Dakota.

84. Mountain States: Montana, Wyoming, Colorado, New Mexico.

85. Great Basin States: Idaho, Nevada, Utah, Arizona.

86. Pacific States: Washington, Oregon, California.

87. Alaska and Island possessions of United States.

88. Canada and New Foundland.

89. Mexico, Central America and West India Islands.

90. North America as a Whole.

91. Brazil.

92. Argentina.

93. South America as a Whole.

94. British Isles.

95. Germany.

96. France and Belgium.

97. Holland.

98. Northern Europe, (North of the Pyrenees, Alps, Carpathian and Caucasus Mountains).

99. Southern Europe.
100. British India.
101. Japan.
102. China.
103. Northern Asia, (North of Elburz, Hindu Kush and Himalaya Mountains).
104. Southern Asia.
105. East India Islands.
106. Egypt.
107. South Africa.
108. Africa as a Whole.
109. Australia.

Suggested Outline for the Study of Mathematical Geography.

1. Four proofs that the earth is a sphere.
2. Three proofs that the earth rotates on its axis.
3. Method used for measuring time.
4. Necessity for International Date Line. Why placed where it is? Why not straight?
5. Earth's equatorial diameter. Polar diameter. Why the difference?
6. Length of a degree of longitude at the Equator, in our latitude, at the Poles.
7. Six important uses of the atmosphere.
8. Probable height of the atmosphere and how estimated. Can eggs be cooked by boiling on a high mountain? Could eggs be cooked by frying?
9. How the atmosphere causes twilight.
10. Thickness of the earth's crust and how estimated.
11. Cause for location of volcanoes.
12. Age of low and high mountains.
13. Soil is usually thick in valleys and thin on mountain sides. Explain. How is this connected with No. 12?
14. How determine East, West, North? Which way is north at the North Pole? Which is east?

15. Distinction between great and small circles on the earth. Select two places on the globe and find the distance between them, first by measuring on the arc of a small circle and then by measuring on the arc of a great circle. Is there any difference?

16. From what was learned in No. 5, how should distances on the earth be measured? Test this on the map of one of the continents.

17. Proof that the earth revolves in an orbit around the sun. Shape of the orbit.

18. Position of the earth's axis with reference to a line perpendicular to the plane of its orbit. Is this relative position changed?

19. What connection between the facts found in No. 18 and the zone boundaries? If the above inclination were 45° what would be the width of the North Temperate Zone? Of the Torrid Zone?

20. With the facts called for in Nos. 17 and 18 in mind, where will the sun be overhead at noon on June 21, Sept. 22, Dec. 21, Mar. 21?

21. Draw a line on the globe showing at what places it will be warmest on the dates named in No. 20.

22. How is the change of seasons brought about?

23. Size of the moon, distance from the earth, and time required to make one exact revolution around the earth. Is this a lunar month? A Calendar month?

24. Size of the sun, distance from the earth. Draw a diagram representing the sun as a shell and place the earth at the center of the sun and the moon the proper relative distance from the earth. What does this show about the size of the sun?

25. Draw a diagram showing the sun at about the center of the earth's orbit and place the moon in such a position that its illuminated face would be entirely away from the earth, so that the half lighted face would be seen on the earth, so that the entire face would be visible. Give proper name to these phases.

26. From diagram in No. 25 see when it would be possible for the moon's shadow to fall on the earth, when the moon might pass through the earth's shadow. Name these eclipses.

27. Apply the knowledge gained in Nos. 25 and 26 to the attraction of the sun and moon upon the water of the earth in producing tides. When will Spring Tides occur? Neap Tides? How long from high water of one tide to the next high water? What will these tides make necessary in the construction of docks in all tidal ports?

28. Some graphic way of representing the sun's distance from the earth. Does the sun rotate on its axis? The moon?

29. Sun's distance from the earth in winter, in summer.

30. Explain the place of the sun's rising and setting at different seasons.

110. Mathematical Geography.

Proofs that the earth is a sphere: circumnavigation, appearance of a ship at sea as it leaves the harbor in any direction, shape of the earth's shadow on the moon, shape assumed by a plastic body when left without interference.

Proofs of the earth's rotation on its axis: direction taken by a body when falling from a great height, the plain of vibration of a pendulum, the daily rise of sun, star or moon. Measurement of time. Necessity for international date line. What determines its location? Size of the earth: diameter, circumference, why flattened at the poles. Supposed height of the atmosphere how calculated? How the atmosphere produces twilight, why the atmosphere remains with the earth. Thickness of the earth's crust, methods of estimating same. Bending, folding and breaking of the earth's crust. Production and age of mountains. Where crust is weakest. Location of volcanoes.

How to determine directions: east, west, north and south. What is east at one point may be west at another. What about directions at the pole? Distinction between great and small circles. Practical use of this distinction.

Proofs of the earth's revolution in its orbit: Locate a fixed star and then compare this with its location after an interval of several weeks.

Axis of the earth: inclination from a perpendicular to the plane of the earth's orbit. This direction remains constant. How this fixes zone boundaries. If the inclination of the axis were changed how it would affect the zone boundaries. In working out these problems, use the slated globe and have the children draw the necessary lines. In the same way, show that a change of seasons is produced by the inclination of the axis in connection with the revolution of the earth in its orbit.

The moon: Size, distance from the earth, revolution in its orbit. Rotation on its axis. Phases of the moon.

Tides. Kinds, spring and neap, caused by the attraction of the moon and sun. Observe when these two bodies act together and when opposed to each other. Frequency of the tides. Results from the tides in harbors and how this affects the construction of docks for the loading and unloading of boats. Opaque, without air or water.

Eclipses. Kinds, sun and moon. In case of the former, may be total, partial or annular; of the latter, total or partial. Causes of each kind of eclipse. Use diagrams to show the relative size and distance of earth, moon and sun.

Sun. Size, distance from the earth, how it produces light. Spots on the sun. Note distance of the earth from the sun in summer and in winter in both northern and southern hemispheres. Its seeming position when seen from different places on the earth at different times in the year. Cause of change in position in the place of rising and setting.

Food Products.	Structural Material.
Dairy Products.	Lumber.
Corn.	Stone.
Beef.	Brick.
Pork.	Iron.
Mutton.	Steel.
Wheat.	Glass.
Potatoes.	Pottery.
Fruits.	Wood Pulp.
Salt.	Caoutchouc
Spices.	Gutta-percha.
Tea.	Leather.
Coffee.	Tile.
Cocoa.	Copper.
Sugar.	Zinc.
Rice.	Lead.
Rye.	Plumbago.
Barley.	Tin.
Poultry.	Nickel.
Fish.	Aluminum.
Nuts.	

Textiles.		
Flax.	Cotton.	Silk.
Wool.	Coarse Fibers.	

Fuels.		
Coal.	Wood (see lumber).	Petroleum.
Coke.	Gas.	

Stimulants and Narcotics.		
Beer.	Wine.	Whiskey.
Tobacco.	Opium.	

Miscellaneous.	
Gold.	Silver.

Part II.—Language Work.

A young man who wishes to become a successful builder engages himself to a master and at once begins work at some of the rougher labor and sets himself to learn, as rapidly as possible, what he should know about the necessary tools, the nature of the material upon which he is to work, and something of the forms of architecture, but keeps ever as his main motive the attainment of the practical skill necessary to a builder. Never does he once suppose that a theoretical study of tools, of building material and architectural style will give him the knowledge indispensable to the actual builder. Neither is he deceived into the belief that an exhaustive study of the mistakes of former builders will do this even if added to all that might be gained by tearing down many most reputable structures. He knows he must work along constructive lines in order to realize his hopes. He must have theoretical knowledge but to know how to build he must build.

So must he who would gain the skill of a master in the construction of English, do so by using it. If he is permitted to suppose that correctly selecting and naming the implements of thought is to give him the desired artistic touch he is deceived. No less so will he be if he thinks to gain the same end by ever so careful a study of masterpieces in detail, bit by bit. Such studies may be helpful if considered simply as aids to the great purpose of originating wholesome, worthy thoughts and expressing them in clear, forceful language. However much we may admire the

delicacy and strength of successful expression, we must ever remember that it is but secondary to the thought that demands it. Hence the most important and most difficult part in this work is to offer children such studies as have both *intrinsic* value and also the power of so rousing their interest that the power of expression is *demanded* by their own desire. Pursued in this way, the children constantly feel the need of adding to their power of expression. To reverse this order and present the mechanical side of language first is like insisting that a young man shall get and carry with him a "kit of tools" when he has developed no desire to be a mechanic. It might be "handy" if such an ambition should ever develop! Let the children learn what they use at once, and learn it because they have need. The ideal teaching is that which rouses a useful activity, demanding just what the teacher had previously decided would be best. The thought side of this subject, properly treated, will demand the somewhat arbitrary rules, or laws, of correct speech. All such laws are either a convenience or a necessity for a ready interpretation of language.

Good thinking is, then, the essential thing in language, and this requires a theme worthy of thought. It presumes it is one about which the children have a body of knowledge and that the teacher has considered both the foregoing and also *fully realizes* that thinking is in no sense good that is not systematic. This being granted, the first and greatest effort of the teacher will be to have the children see the value of some logical plan for the subject to be considered. The subject, thus mutually agreed upon, will furnish, let us suppose, five sub-topics each one of which becomes a center

of interest calling up the observations and knowledge of the children. Unaided, the thinking of the children would have been so chaotic and without point as to have had no educative value. It would not have led to better thinking next time. For the purpose of helping timid children to forget themselves and gain confidence and freedom, miscellaneous chatter about dolls and babies, pet cats or dogs may be quite the wise thing but only because freedom and interest are necessary to accomplish the higher end.

The value of continuity of interest is very great and should be utilized in all the work on this subject. A lesson on a subject of intrinsic value and genuine interest, followed by a lesson on some other disconnected subject of equal value and interest is not nearly so helpful as two lessons given on different, but connected parts of one theme. The cumulative value of a series of connected topics that together constitute a piece of organized knowledge can hardly be overestimated. Language books usually lack this quality. Each chapter, or distinct exercise, is a purely artificial invention intended to exemplify some law of language and not in any way justified by the value of its content. Besides, the written language work should grow out of and be made to assist in gaining a more accurate and systematic knowledge of the matter read in literature and history, or that discussed in geography.

In fact, the most serious difficulty is that neither teacher nor pupils have time to do, as such work should be done, the written work that would seem desirable. The oral discussion that should accompany the reading of any worthy book is too often neglected. Nothing provokes better or

more helpful thinking. Such reading furnishes the opportunity for tracing causes to their effects, of estimating motives, of seeing beauty of conduct to say nothing of the direct study of English as shown by the words and the sentence structure. In no other way can the real value of good literature be so completely realized and no other language work, oral or written, is superior to this. In the hands of a teacher who not only sees intellectually, but feels emotionally, the power and the beauty of the matter read, and who holds the discussion, logically, to the theme being considered, the children become most absorbed, express themselves with the most freedom and earnestness and make the entire exercise a delight to themselves as well as to others. This kind of language work cannot safely be neglected. Still it should be ever kept in mind that the teacher must, previously, have interpreted the piece of literature in a clear-headed and whole-hearted way or the greatest classic will be valueless to the children.

Never permit children to write on a theme until they have a goodly store of accurate knowledge pertaining to it and also have a thoughtfully prepared outline as a framework. The knowledge may be gained in part, at least, by the independent research of the children, but it should have undergone the testing and sifting of one or more recitations and the plan, at first and for some time, must be worked out by the teacher with the class. The teacher, however, should *always* have carefully considered the theme and decided on the outline before discussing it with the class. No theme worthy of consideration is so simple and no teacher is so well equipped that she can ever afford to disregard

this suggestion. The simplest themes reveal unsuspected strength and beauty through earnest and sympathetic search. Beside, the mental vigor and insight that comes to the teacher from a fresh study of even an old subject, fills her labor with a real joy and it becomes both the guide and the inspiration of the children. This is especially dwelt upon because it is here that the work oftenest fails.

If the work preparatory to composition is carefully done, as here suggested, the children will not disappoint us with slovenly work. It is demanding frequent written work without *adequate preparation* that inundates teachers desks with worthless results. Let us stop it. Why continue this self-invited misery! Let papers for written language work be prepared not oftener than once a week or once in two weeks, but when they are prepared let us make much of them and require the children to do so. When a paper has revealed errors that the writer himself could have avoided if he had taken the trouble to do so, read no further, but return the paper for correction, or if necessary, for re-writing. Do this *persistently*, *kindly* but *inexorably* and, within one month, the written language work will have undergone a happy revolution. *But do it.*

When papers are carefully prepared, they deserve conscientious and intelligent reading and criticism. After this has been done by the teacher she should require each child to do what those criticisms demand as a training in English. This can be done only in part as a class exercise. Largely, this part of the work must be by individual contact of the pupil with the teacher. The child must be personally shown his weaknesses and, if there are several such.

it would be wise to select the most prominent for correction, leaving the others for future consideration. If it seems necessary to omit some recitations in order to do this individual work, it is certainly wise to do so. If this part of the work is not well done, all that has been done before will have little value.

There is no reason why writing a composition should be more difficult or unnatural than telling a story that is well understood, or doing the work in recitation. Each recitation is a composition and should be planned by the one reciting. Each recitation period should be carefully planned by both the children and the teacher. The teacher that so plans will make her assignments with direct reference to the relation of the parts of the theme being considered, and this will force a logical method of study, an end about which so much is *said* and so little *done*. The language work may thus greatly aid the other studies of the course and, in turn, be greatly aided by them.

The outline here given only slightly touches the thought side of language work. To consider it with any fullness would require a volume in itself. The suggestions already offered must suffice. The more readily to see the connection between the language work and the reading, the books used for reading are named in connection with the language work of each grade.

First Grade.

The main work in this grade should be to aid the children in gaining the power of orderly thinking, and, so far as possible, the power to express this thought clearly by

dramatic action, by plays or games, by drawings or by paper cuttings, as well as in writing and in speech. This will be done more largely by the use of stories than in any other way but the children should not be asked to tell the story which they had previously read or heard until the teacher has helped them to see the important parts of the story in logical order. This work should begin very early in the year. To expect a child to tell a story successfully without this preparation is to hope for the impossible. No lesson of the year is more valuable for the child than that of orderly thinking and doing, and none creates more interest with the child himself, if it is wisely presented. He early sees that he is gaining the power of both thinking and doing more effectively. The theme used will of necessity spring from the reading matter he is to use during the year. "Aesop's Fables" will lend themselves very readily to any special work for which the teacher sees occasion or has the time.

Learn the use of capital letters with the first word of every sentence and with every proper name there is occasion to write or spell, also that the words I and O should always be capitals. Further, that every telling sentence should be followed by a period and every interrogative sentence by an interrogation point.

READING FOR THE YEAR.

First Grade.

To be purchased by the pupils:

Hiawatha Primer.

In Maryland.

Furnished by the Board:

Cyr's Primer.
Literary Primer.
Stories for Children.
Sunbonnet Babies.
Riverside Classics, No. 59.
Six Nursery Classics.
Cyr's First Reader.
Aesop's Fables, No. 1.
Aesop's Fables, No. 2.
Old Times Stories.
Pollard's First Reader.

LANGUAGE.

Second Grade.

The oral work in this grade, if properly presented, will be of much more value than the written and should be definitely planned and controlled. The suggestions made in first grade apply with equal force in this. Of course much more written work may be done and this may very appropriately be provided from the reading work and from any special stories given the room either by the teacher or superintendent. Do not limit the child's expression of thought to that of speech or writing, but include other forms named in the first grade. Have children write from dictation.

The formal part of the year's work may consist of learning the use of the capital letter with the names of the days of the week, of any special days, of the names of the months, the first word of every line of poetry, the use of the period

in any abbreviations used, of the comma with an enumeration of particulars, of the apostrophe to denote possession and omission, of the exclamation point to denote surprise, and of the hyphen with an incomplete word at the end of a line. Make lists, first of nouns that are used in both the singular and plural forms, where the latter is made by the addition of s, then of nouns ending in s, sh, ch, or x forming their plurals by adding es, then of nouns ending in f, fe, ff, ft, with their plural forms, then of nouns that form their plurals irregularly. Use the terms singular and plural and have the children use them. Proper use of is, are, was, were, has, and have. Proper use of a and an. Select qualifying adjectives that are changed to an adverbial form by the addition of ly. Write lists and teach the proper use of each form. In doing the work just named let it be the result of the children's observation of both written and oral language and have them draw the conclusions which would finally be embodied in the above rules of language.

READING FOR THE YEAR.

Second Grade.

To be purchased by the pupils:

Bow-Wow and Mew-Mew.

Nature Myths and stories.

Furnished by the Board:

Cyr's Second Reader.

Braider Straws.

Classic Stories for Little Ones.

Little Nature Stories.
Robinson Crusoe.
Stories of the United States.
Big People and Little People of Other Lands.

Third Grade.

The pupils of this grade should write considerable matter from dictation and they will be able to do successfully both oral and written work in reproduction and in simple narration. Special stories that may be told to the grade and the historical reading required during the year will furnish excellent material for these forms of composition. Let the written work that is done be for the purpose of gaining clearer and more correct views of the various things studied in the grade and not for its language training merely. What has already been said in regard to the necessary work in preparation for either oral or written language should be kept constantly in mind.

Points to be made in formal language work. Punctuation of dates and addresses, use of capital with all proper nouns, including geographical names, titles of books, and the names of the Deity. Proper form for writing a quotation, use of the period in writing all abbreviations and Roman numerals and at the close of an imperative sentence. Use of the comma after the name of a person spoken to, before a short quotation, and before and after explaining expressions. Extend the use of the exclamation point to include other ideas than mere surprise, as sorrow, fear, anger. Use of the apostrophe in writing contractions.

Teach the correct possessive form for nouns in both

singular and plural, always requiring the child to think or write the plural form before attempting to give the possessive plural. Make more complete lists of the singular and plural forms of nouns than was required in the second grade and include nouns ending in y, when preceded by a vowel and when preceded by a consonant. Of the irregular verbs most in use, teach the present, past and perfect forms and their proper use with both singular and plural subjects and with the helping verbs has, have, and had. Teach the correct forms of the personal pronouns I, you, he, she, and it with special reference to the objective. Teach how to write the plural of characters; such as, a (a's), 2 (2's). Carry the correct use of adjectives and adverbial forms further than was done in the second grade. In arranging a plan for oral or written language, teach definitely and clearly the idea and use of a paragraph. Give special attention to double negatives and the correlation of either and or, neither and nor, and the correct use of as and like, in and into, on and upon, between and among, at and to. Teach the correct use of this and that, these and those, and that the word them can *never* be correctly used for either these or those.

READING FOR THE YEAR.

Third Grade.

To be purchased by the pupils:

Stepping Stones to Literature, No. 3.
Editha's Burglar.
Captain January.

Furnished by the Board:
Cyr's Third Reader.
Letters from a Cat.
Seaside and Wayside.
Each and All.
Seven Little Sisters.
Stories of Colonial Children.
Great American for Little Americans.
Things Will Take a Turn.

Fourth Grade.

Continue, more fully than in the preceding grade, teaching the meaning and use of the paragraph, never forgetting the necessity of a plan, worked out by the teacher and children jointly, or by the children alone, according to which either oral or written work may be prepared. Require only such written language work as will directly aid in gaining a more satisfactory grasp upon the regular studies pursued. Two qualities of good writing can be readily understood by pupils of this grade and they should be helped to an understanding of them. These qualities are clearness and unity. The understanding and practice of these will be found quite as valuable in the every day recitation as in the more formal language exercises.

Teach the distinction between direct and indirect quotations, letter writing, including the forms appropriate for business, social occasions and friendship. The parenthesis, the use of the comma after inverted expressions and after the word as when it introduces an example, and that a

semicolon should be placed before the word as in the case just referred to.

The distinction of subject and predicate. Make more extended lists of irregular verbs in the three forms indicated in the preceding grade, teaching the use of the perfect form with an auxiliary or helping verb, transitive and intransitive verbs, prepositions, and have the children discover that transitive verbs and prepositions alone require the use of the objective form of the pronoun. Apply this especially with personal pronouns and the relative pronoun who. Distinguish between pronominal adjectives and adjective pronouns. Teach the predicate noun and pronoun with special reference to the correct form of the latter. Give special attention to the verbs lie, lay, sit, set, rise, raise, learn, teach, and do not use expect for think, clever for kind, had rather for would rather, splendid for pleasant, shall for will, get for have, or he don't for he doesn't. Make it plain that when a noun, modified by the word each or every, becomes the antecedent of a pronoun the latter should have the singular form.

READING FOR THE YEAR.

Fourth Grade.

To be purchased by the pupils:
- New Era, Fourth Reader.
- Hoosier School Boy.

Furnished by the Board:
- American History Stories, No. 1.
- Brooks and Brook Basins.

Ten Boys on the Road from Long Ago.
Tales of Troy.
The Story of Ulysses.
Stories of American Pioneers.
The Burglar's Daughter.
Two Little Knights of Kentucky.
Rambles of a Rat.
Wilderness Ways.

Fifth Grade.

The reading required for this grade furnishes ample occasion for written composition work in description, narration or invention. The geography and the history demand quite an amount of written work for the purpose of strength and clearness of comprehension. Definite and more full instruction on the subject of clearness and unity in composition is needed. Continue the study of the paragraph and the planning of a theme for oral as well as written language work.

Teach the use of capital letters in titles of honor or respect, also that a semicolon should be placed after yes sir, or no sir, when they do not end the sentence, and before the words, as, viz, to-wit, namely, when used to introduce an example, that a dash is used to denote a sudden change of thought and that the colon should be placed before a long quotation or a formal enumeration of the particulars. Teach the use of the caret.

Teach the use of the comparative form of the adjective when but two things are spoken of. Continue drill upon the proper form of pronoun to be used as the object of a

transitive verb or preposition. All parts of speech should be readily and correctly distinguished by the children before the end of this year. Great care is needed that these distinctions be readily comprehended. Definitions are not desired. Give special attention not to use stop for stay, love for like, consider for think, plenty for plentiful, in for into, between for among, funny for strange or odd, fix for repair, some for somewhat, awful for very. See cautions in third and fourth grades.

READING FOR THE YEAR.

Fifth Grade.

To be purchased by the pupils:

Dog of Flanders.
Stepping Stones to Literature, No. 4.

Furnished by the Board:

Rambles of a Rat.
J. Cole.
A Strike at Shane's.
Story of the Middle Ages.
Anderson's Fairy Tales.
Bird's Christmas Carol.
Children's Crusade.

Sixth Grade.

It is not necessary to repeat what has been said in the two grades preceding as to the source from which the written language work should be derived. No exercise needs to be prepared as a language exercise *simply*. The

educative effect is greatly intensified by having a more powerful controlling motive than that of mere literary form.

Teach the children not only to recognize the different parts of speech, but also to classify them. Give more attention than could be given in preceding grades to the different forms of the pronouns as to case, to the person and number of pronouns as determined by antecedents, to predicate nominatives and to the proper form of pronouns when they are the objects of transitive verbs and prepositions. Review and drill directly upon the rules for capitals and punctuation heretofore given.

READING FOR THE YEAR.

Sixth Grade.

To be purchased by the pupils:

Melody.
Stepping Stones to Literature, No. 5.

Furnished by the Board:

Story of the Greeks.
Story of the Romans.
Little Lame Prince.
Montgomery's Beginners' History.
The Gate of the Giant Scissors.
Tanglewood Tales.
Stories of English History.

Seventh Grade.

The work of this grade should include thorough drill in descriptive and narrative composition together with some invention, and should, as in the previous grades, spring

from the work in history, reading and geography. More efficient work can now be done in establishing the children, not only in the more mechanical part of good composition, but in gaining a more forceful, clear and direct style of expression. Remember that the above remarks apply, as previously stated, to the oral as well as written composition. If this were kept in mind during the recitation work of the first seven grades the English of the public schools would be revolutionized. The children have not sufficiently been helped to understand the great fundamental things that underlie good English. They have been too much bewildered by petty criticisms understood neither by them nor their teacher.

The English, in part, retains the characteristics of inflected languages and has certain words and special forms that may properly be designated as mode and tense signs. Have or has, used as an auxiliary, may properly be taught as a sign of the indicative present perfect, had as a sign of the past perfect indicative, shall have or will have of the future perfect indicative. May or can may be taught as a sign of the present potential, may have or can have as a sign of the present perfect potential, might, could, should or would as a sign of the past potential, might have, could have, should have or would have of the past perfect potential. The special forms of the subjunctive should be definitely presented and compared with the conditional indicative. The children should be taught to analyze simple, compound and complex sentences, but not of difficult construction. This will necessarily require a review of the parts of speech.

Teach the use of the semicolon for the separation of the greater parts of a sentence when the less are separated by commas. When a long quotation has no formal words of introduction, it should be preceded by a semicolon.

Give some drill of the forms especially noted in the fourth and fifth grades under the head of "Give special attention," etc.

READING FOR THE YEAR.

Seventh Grade.

To be purchased by the pupils:

Uncle Tom's Cabin.

Furnished by the Board:

The Man Without a Country.
King of the Golden River.
Heroes of the Middle West.
Pioneer History Stories.
Polly Oliver's Problem.
The Child of Urbino.
Snow Bound.

Eighth Grade.

Maxwell's Advanced Grammar.

READING FOR THE YEAR.

To be purchased by the pupils:

Dicken's Christmas Stories.

Furnished by the Board:

Silas Marner.

Merchant of Venice.
Evangeline.
Vision of Sir Launfal.
Seven Oaks.
Brave Little Holland.
Enoch Arden.

RULES FOR PUNCTUATION.—Recapitulation.

CAPITAL LETTERS.

1. The first word of every sentence should begin with a capital letter.

Note.—A sentence, preceded by an introductory word or clause, such as, Be it resolved, Be it enacted, Resolved, etc. begins with a capital letter notwithstanding the introductory word or words.

2. The first word of a direct quotation should begin with a capital.

Note.—The principle of this rule applies to any especially emphasized thought in the sentence or to an important question.

Example. One truth is clear; Whatever is right. Ask yourself this question; Are you doing right?

3. The first word of every line of poetry should begin with a capital.

4. Every proper noun should begin with a capital letter.

Note.—This applies to many common nouns when they become a part of the proper noun.

Example. This is the Chicago Road and leads directly to Lake Michigan. Fox River, Rocky Mountains.

Note.—The words north, south, east and west should begin with capitals when they mean sections of the country and not points of the compass.

Example. Chicago, the largest city of the West, is west of the south end of Lake Michigan.

Note.—This rule applies to the names of the days of the week and of the month but not to the seasons of the year.

Note.—The words denoting the common family relations; as, father, mother, cousin, aunt are considered proper nouns when they are used with the name of a person or without the possessive pronoun.

Example. I had a letter from Mother to-day and also one from Cousin Charlie. When did you hear from your mother?

Note.—The name of objects personified are proper nouns and come under this rule.

Note. Most words derived from proper nouns should be capitalized.

5. All names of the Deity should begin with capital letters.

Note.—All personal pronouns used in direct address referring to the Deity should be capitalized. When pronouns referring to the Deity are used with an antecedent they are not capitalized except to avoid confusion with pronouns referring to another antecedent.

Examples. O Thou that hearest the mourner's prayer.
O Lord and Master of us all!
Whate'er our name or sign,
We own thy way, we hear thy call,
We test our lives by thine.—Whittier.

6. Titles of honor, respect or office begin with capitals when used in a formal way or in connection with a proper name.

7. The important words in titles of books should begin with capitals.

Note.—Frequently all the letters in book titles are printed in capitals but they are never so written.

8. The words I and O should always be capitals.

PERIOD.

1. A period should be placed after every imperative and declarative sentence.

2. A period should form a part of every aboreviation and Roman numeral.

Note.—The above rule is often stated incorrectly. The period is not placed after an abbreviation or Roman numeral but constitutes a part of of it. Such expressions as 3d, 12th, 8vo, 16mo are not abbreviations.

COMMA.

1. Every parenthetical or explanatory expression should have a comma before and after it.

Note.—This rule has a very broad application and should be very carefully studied. It includes words used in apposition, with all their modifiers.

Example. When Jason, the son of the dethroned King of Iolcus, was a little boy, he was sent away from his parents.

Note.—A relative clause that does not limit or restrict the meaning of the antecedent but does present some additional thought should be regarded as coming under this rule.

Example. The man, who proved to be an escaped convict, was, nevertheless, an interesting speaker.

Note.—This rule also applies to adverbs, some times said to be used independently, as the word nevertheless in the example above.

Example. He, too, passed the guard and others, also, that were with him.

Note.—Expressions containing a word in the independent case, or case absolute, may be considered as coming under this rule.

Example. Then, the appointed day having arrived, the Declaration was taken up and debated.

2. A comma should be placed after a name used in direct address.

Note.—A name used as above commonly introduces the sentence, but when the sentence is introduced by any other word a comma should be placed before and after the name.

Example. Come, my son, we will see what a new venture may do for us.

3. A comma should be placed before and after titles of honor and respect.

4. A comma should be placed after each of an enumeration of particulars when the conjunction is omitted.

Example. The sea carried men, casks, spars, planks, bulwarks and heaps of toys into the boiling surge.

5. When words or phrases are used in pairs, a comma should be placed after each pair.

Example. Sink or swim, live or die, survive or perish, I give my hand and my heart to this vote.

6. Words or phrases which are contrasted should be separated by commas.

Example. We live in deeds, not years.
There are few voices in the world, but many echoes.

7. A comma should be placed before a short quotation.

Note.—This rule should also cover expressions that are important and used as quotations although the words are the writers.

Example. The question now is, How shall we know what are good books?

8. A comma should be placed after the words as, viz, to-wit, namely, when they introduce an example.

9. When there are several statements and one common verb, if the verb is omitted a comma should be used.

Example. Carthage has crossed the Alps, Rome, the seas.

10. A comma should be placed after an inverted expression.

Note. The grammatical order of a sentence requires the important part to precede and the modifiers to follow; when this order is not followed, the parts are said to be inverted.

Example. Because the doctor insisted on a change of scene, they took the patient to the seaside.

Notwithstanding the failure, the effort deserved great praise.

Note.—Many dependent and conditional clauses, introduced by the words, if, unless, though, precede the main part of the sentence.

Example. If youth are taught how to think, they will soon learn what to think.

Though He slay me, yet will I trust Him.

SEMICOLON.

1. A semicolon should be placed before a long quotation that has no formal words of introduction.

2. A semicolon should be placed before the words, as, viz, to-wit, namely when used to introduce an example.

3. A semicolon should be placed before an enumeration of particulars merely mentioned without any words of introduction.

Example. Sentences are of three kinds; simple, complex and compound.

4. The members of a compound or complex sentence, when not closely connected in sense, are separated by a semicolon.

Example. As we proceeded, the timid approach of twilight became more perceptible; the intense blue of the sky began to soften; the smaller stars went first to rest; but the bright constellations of the west and north remained unchanged.

COLON.

When a long quotation or an enumeration of particulars are formally introduced they should be preceded by a colon.

Example. The speaker's words were these: "The day has arrived when," etc.

The items of his account were as follows: "4 yds. of prints @ 6c," etc.

INTERROGATION POINT.

1. An interrogation point should follow every complete question.

Note.—When the question consists of several parts, or when several questions are contained in one sentence, an interrogation point should follow each part provided the sense would require different answers, otherwise it should be at the close of the entire sentence.

Example. What was the fate of Regulus? of Hannibal? of Cleopatra? of Julius Caesar?

2. The interrogation point is used to express irony or doubt of the truth of the statement.

Example In the year 1805 (?), Irving made his first voyage across the Atlantic.

So, he was a good (?) man?

EXCLAMATION POINT.

1. An exclamation point should be placed after every word, phrase, or sentence expressing strong emotion.

Example. Aha! aha! I have caught you this time!

2. The exclamation point is used to express irony or sarcasm.

Example. You set us a good (!) example, your own temper is so angelic!

DASH.

1. The dash is used to mark sudden changes in thought and in construction.

Example. Have you ever seen—but of course you never have!

2. The dash is used to mark the omission of letters and figures.

Example. Mrs. H——, formerly Miss A ——, lives on B—— Street. He spent the winter of 1902–3 in Boston.

3. Dashes are used instead of the parenthesis.

PARENTHESIS.

1. The parenthesis is used to enclose expressions that have no essential connection with the rest of the sentence.

BRACKETS.

Brackets are used to enclose words or phrases entirely independent of the rest of the sentence.

Note.—The words placed in brackets are comments, queries, corrections or directions inserted by some other person than the original writer or speaker.

Example. He speaks of spending the Sabbath with them [whom?] as they were without a minister.

Each received one in their [his] turn.

[Enter Puck] O Queen, we salute thee!

HYPHEN.

The hyphen is used to separate the parts of a compound word and to divide a word into syllables.

APOSTROPHE.

The apostrophe is used as the sign of the possessive case, also to denote the intentional omission of a letter or letters and in forming the plurals of letters, figures and other characters.

Example. In the line, were found four A's, three 6's and two+'s.

The moon's calm beams shone o'er the earth.

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